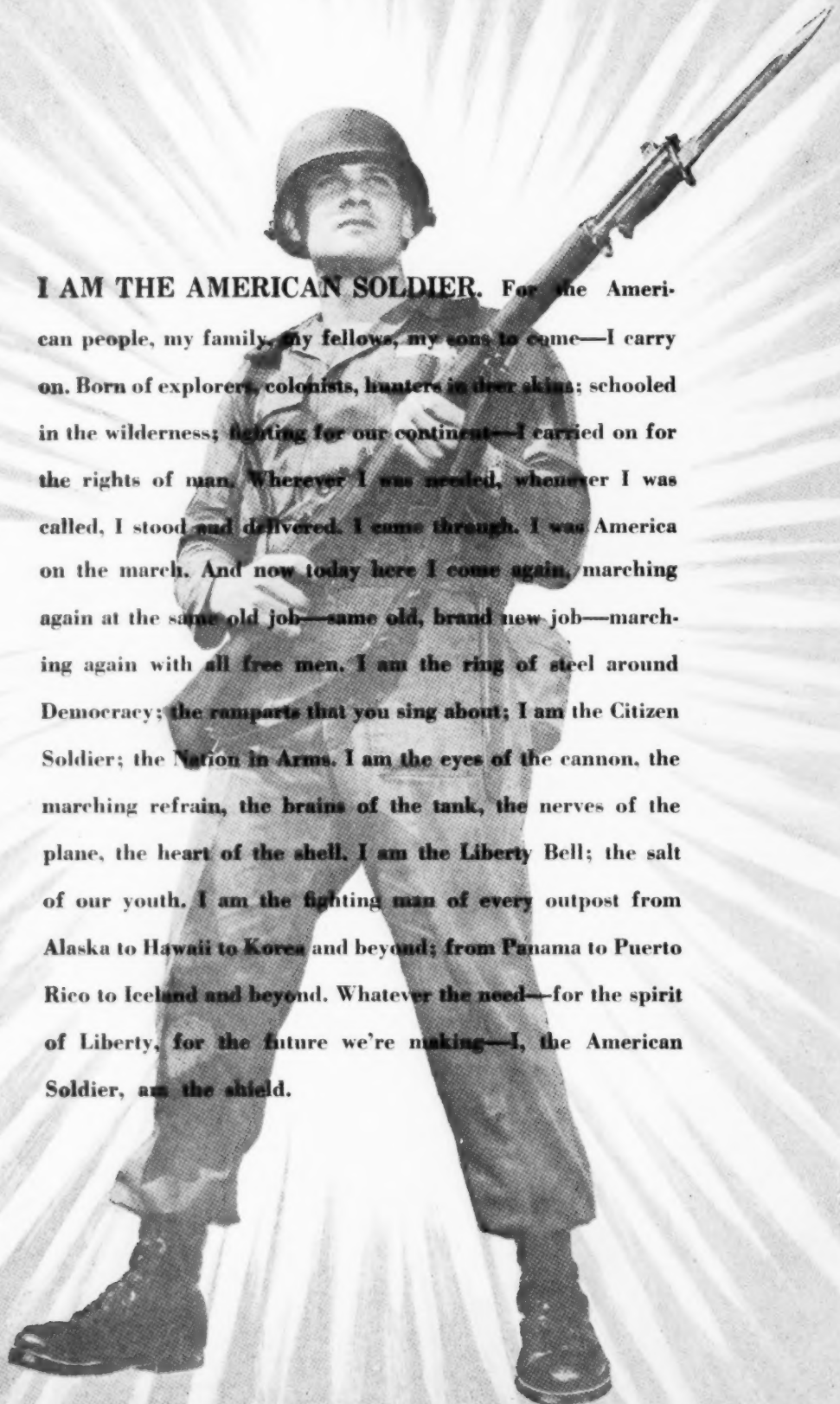
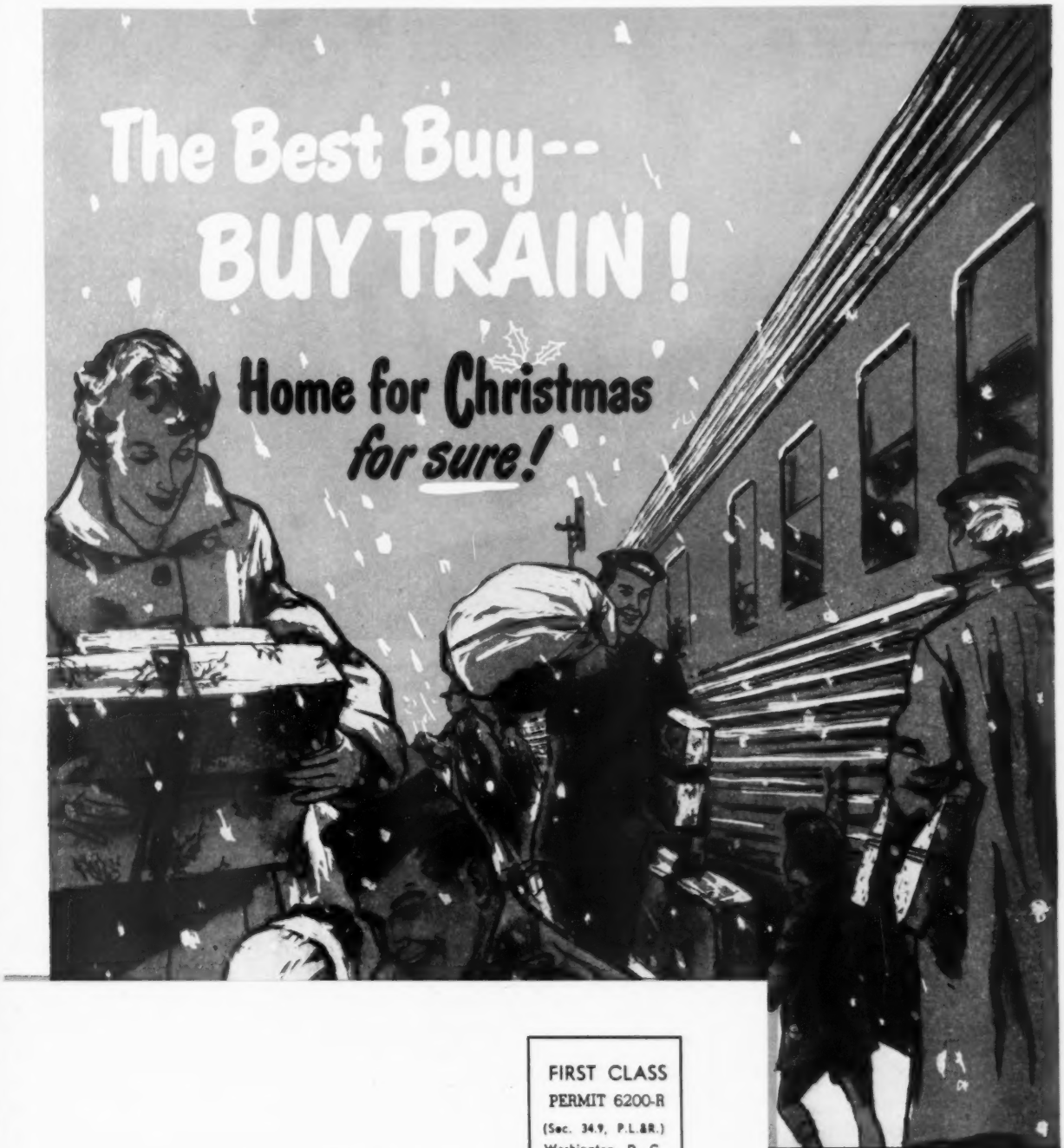
ARMY

DECEMBER 1956
50¢

Complete Report of AUSA's Second Annual Meeting



I AM THE AMERICAN SOLDIER. For the American people, my family, my fellows, my sons to come—I carry on. Born of explorers, colonists, hunters in deer skins; schooled in the wilderness; fighting for our continent—I carried on for the rights of man. Wherever I was needed, whenever I was called, I stood and delivered. I came through. I was America on the march. And now today here I come again, marching again at the same old job—same old, brand new job—marching again with all free men. I am the ring of steel around Democracy; the ramparts that you sing about; I am the Citizen Soldier; the Nation in Arms. I am the eyes of the cannon, the marching refrain, the brains of the tank, the nerves of the plane, the heart of the shell. I am the Liberty Bell; the salt of our youth. I am the fighting man of every outpost from Alaska to Hawaii to Korea and beyond; from Panama to Puerto Rico to Iceland and beyond. Whatever the need—for the spirit of Liberty, for the future we're making—I, the American Soldier, am the shield.



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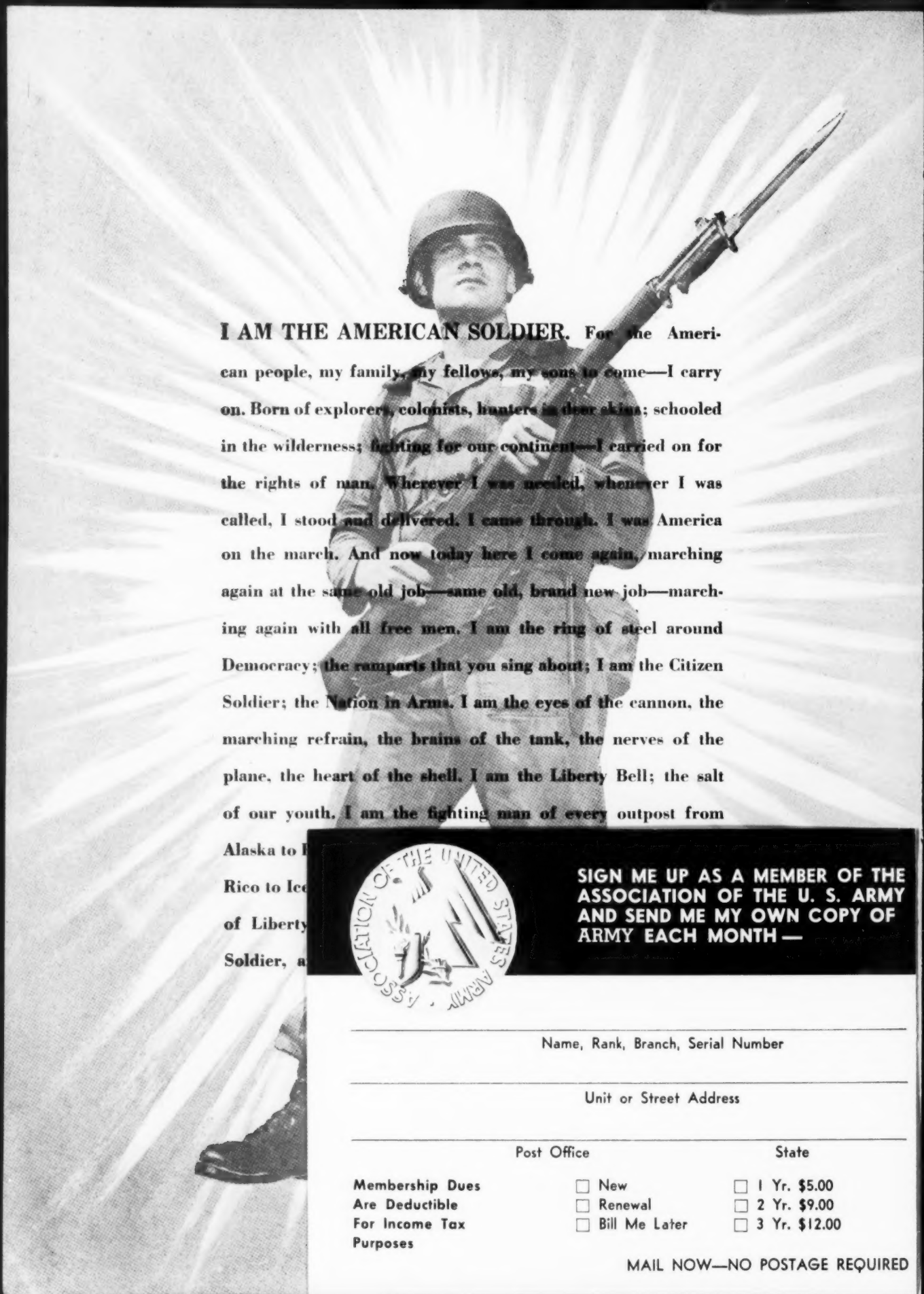

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HARD WORK IN ICELAND—Supporting an aerial survey team in Iceland, this Sikorsky H-19 of the U.S. Air Force carried personnel and supplies between ship and shore bases. In 23 flying hours, the helicopter carried 41 people and 47,000 pounds of cargo. This is a good example of how rugged Sikorsky helicopters can operate from very small areas, with minimum support facilities, and under a variety of weather conditions.

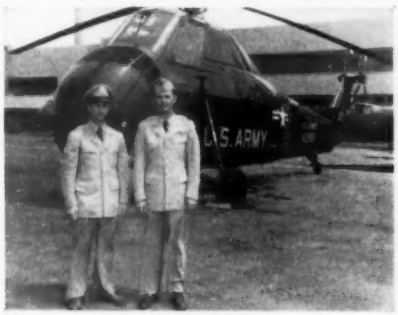
AROUND THE WORLD WITH SIKORSKY HELICOPTERS

FIRST S-58 TO BELGIUM—The first units of a fleet of 12-passenger Sikorsky S-58Cs have been delivered to Sabena Belgian World Airlines. Sabena will operate the fleet on its European routes. Larger and more powerful than the S55s Sabena now flies, the S-58C, named the *Continental*, cruises at 105 miles per hour.

1000th S-55—B. L. Whelan, general manager, and Igor Sikorsky, engineering manager, mark a milestone in production of transport helicopters with completion of this 1000th Sikorsky S-55, a Marine Corps HRS. Two newer and larger helicopters are also in production, the S-58 and the twin-engined S-56.

AIRLIFT DEMONSTRATION—To show evacuation techniques in the removal and transport of light aircraft, an Army Sikorsky H-34 helicopter carries a Cessna L-19. The demonstration and the suspension arrangement were worked out at Fort Sill, Oklahoma, site of the Army's H-34 transition school. The Sikorsky H-34, the Army's newest helicopter in operational use, can carry cargo loads of up to two tons or 17 combat-ready soldiers plus crew of two.

HELICOPTER HISTORY



H-34 SPEED RECORDS

In July, 1956, an Army Sikorsky H-34, flown by Capt. Claude Hargett, right, and Capt. Ellis Hill, of Fort Rucker, Ala., established new closed-circuit speed records. The records were for 100 km, 141.9 mph; for 500 km, 136 mph; and for 1000 km, 132.6 mph. The previous 1000 km closed-circuit world speed record for rotorplanes, 66.6 mph., was set by a Sikorsky R-5A in 1946.

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ARMY

DECEMBER 1956
Vol. 7 No. 5

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ARMY is a professional military magazine devoted to the dissemination of information and ideas relating to the military art and science representing the interests of the entire Army. ***ARMY*** *magazine strives to—*

Advance man's knowledge of warfare in the fields of strategy, tactics, logistics, operations, administration, weapons and weapons systems.

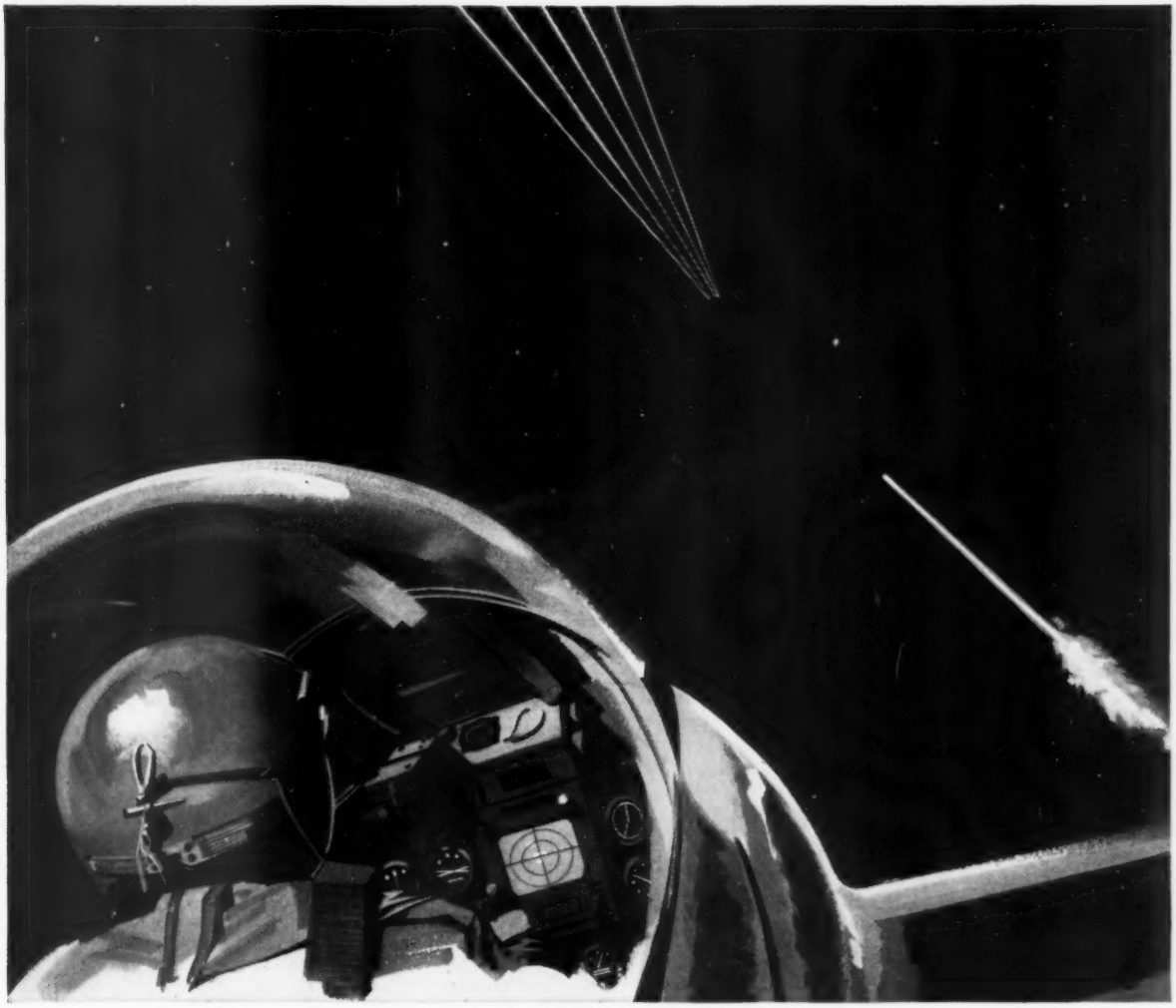
Advance man's knowledge and understanding of the soldier as an individual, as a member of a trained unit, and as a member of the whole Army; emphasizing leadership, esprit, loyalty, and a high sense of duty.

Disseminate knowledge of military history, especially articles that have application to current problems or foster tradition and create esprit.

Explain the important and vital role of the United States Army in the Nation's defense and show that the Army is alert to the challenges of new weapons, machines, and methods.

Advance the status of the soldier's profession.

—AUSA By-Laws, Par. 13 Article II



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THE MONTH'S MAIL

Soldier of the Futurarmy

● My officers were fascinated, and I was deeply grateful to see the kind of thinking displayed by Colonel Rigg in the "Futurarmy" article in the November issue.

COMDR. R. B. LANING, USN
Sea Wolf (SSN 525)
c/o FPO, New York, N. Y.

● I was very much intrigued by "Soldier of the Futurarmy" in the November issue. My only complaint would be that Colonel Rigg has put his times too far ahead. Also, I have no idea what technical assistance and contacts you had in drawing up the sketches.

I do not know why everyone is so concerned with the idea of an atomic-powered aircraft. To me it is a terrible waste to put six months' to a year's supply of fuel in a device which will never be away from base for more than a few hours at a time, whereas if it is captured, then six months' to a year's supply of fuel automatically falls into enemy hands. It has seemed to me that if someone like Colonel Rigg, who knows the field requirements, were to set up specifications for such a dream army, it would be found that almost all the elements are available now and many of the prototypes could be available in a year or two.

For instance, the Fairey Rotodyne under development in England at the present time is to have full vertical takeoff and landing capability. The carrying capacity of a five-ton truck and a speed of about twenty times that of a truck would make it the equivalent of twenty trucks. However, it would really be much more than the equivalent of twenty because it would not be subject to roadblocks, traffic jams, and the like.

I do not know why Colonel Rigg chose the flying platform as the vehicle around which to build his sketches, since the flying platform is the least efficient method of elevation, barring only the straight down-pointed jet. However, there are numerous other arrangements that are available now with a large amount of experimental development behind them. All these are rather "sitting around," so to speak, waiting for someone like Colonel Rigg to bring together the technical possibilities and the military needs.

DAVID C. PRINCE
Electrical and Mechanical Engineer
50 Washington Ave
Schenectady 5, NY

Needed: A Ground Combat Medal

● Why can't we adopt a decoration for ground combat equivalent to the flyboy's Air Medal? I'm not for handing out decorations for normal duties, for our system is already overloaded with "automatic" awards. But look at the many men like gunners and combat engineers who feel like rear echeloners even though they wear stars on campaign ribbons. Also, we have no way of telling how much combat a man wearing a Combat Infantryman's Badge has had.

Can't we do something to help raise the incentive to become a ground combat soldier and increase the prestige of the man who has fought on the ground?

We might have an award for initial engagements, of say, ten days, with Oak Leaf clusters for subsequent periods of service beyond sixty days. It could also be awarded for noteworthy leadership in patrol actions that don't rate a valor award of the Bronze Star.

Such a yardstick could be used in future wars. For past service, we could verify from personal and unit records. We might have difficulty with the TDYs and visitors, but we should let the record speak. Awards should be at not higher than battalion level, and include supporting and attached units. As for higher commanders, the simple thing to do is to make awards only to those who must be present at the front.

We have the CIB for infantry, the CMB for medics, but nothing for artillery, armor, engineers, chaplains and others who are up where the shooting is. Let's recognize them too.

CAPT. GEORGE A. NIGRO
SigO, Bad Kreuznach Subarea
APO 252, NYC

Needed: A New Gallery Rifle

● Captain Turner's Cerebration in the October issue recommends the use of reduced charge ammo for rifle marksmanship training. It worked famously in the days of the late lamented '03 and other hand-operated rifles. The idea is good, but it won't go with self-loaders, except by using conversion kits.

The only reduced charge .30 in use is the M22 frangible round for tank gunnery training. While reasonably accurate at short ranges, it is a lead-poisoning hazard indoors, unless ventilation is good. The Army once issued gallery practice reloading outfits for the .30-40 and .30 M1906, but both have been out of date for years.

We might simulate the service weapon and use the .22 more widely. There is a machine-gun trainer in use which is a dead ringer for the real thing. But when you come to rifles, there is a difference. Our .22 trainers are commercial, light, target rifles with bolt actions that simulate the M1 like I resemble Hannibal. After years of misuse by ham-handed recruits, they are as hard to keep accurate as a gossip column.

A properly designed semiautomatic .22 would help training a great deal. Gallery and small-bore ranges take up much less room than .30 ranges, and this little job would help some of those SU people keep their eyes in trim.

The subcaliber should load in the same way as the piece it simulates, with the same balance and feel, and a sight system as nearly like the basic weapon as is it possible to devise. You couldn't properly field strip with the small-bore weapon, but that action requires little space with the real McCoy. And if John Recruit learns how to correctly hold the rifle, caliber .22, M1 Junior, his coach won't feel like kicking his teeth out on the range come summer.

All major arms makers produce a semiauto .22. It shouldn't be too much of a problem to develop a training rifle of proper shape, feel, and so on. After all, we may change our basic rifle soon, so why not our gallery rifle?

WO J. P. CONLON
52 Columbia St
Newark, Ohio

Tight Rein on the Staff

● As in many discussions of management problems, it appears that Colonel Kowalski in "Command Development through Decentralization" [September] has assumed that responsibility for action rests solely with our top leaders. . . .

We place great stress on the duties of subordinate to senior, but not always equal emphasis on the duty of every senior toward his subordinates. Among the latter responsibilities is the need for each of *us* to delegate authority and to protect *our* subordinates from our own overzealous staff officers.

Perhaps an answer lies in taking a new look at a sound management principle to see if we have been applying it blindly to both staff and line, whereas a separation is desirable. It is accepted as a

Cessna's armored OE-2 protects Marine pilots

Cessna's reconnaissance-liaison plane—the OE-2—brings greater versatility to Marine Corps air operations, is specifically designed to give the pilot protection in combat.

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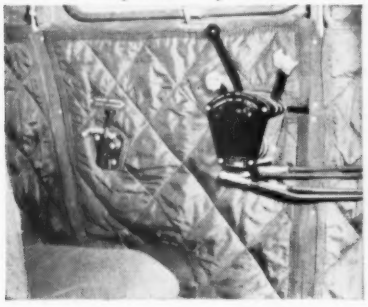
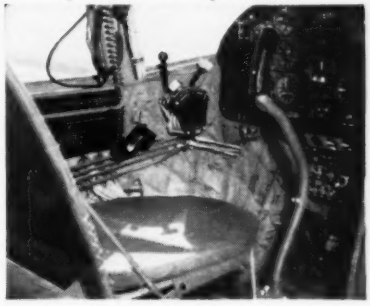


Flak curtain and armor plate afford pilot maximum protection.



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KAMAN
THE KAMAN AIRCRAFT CORP., BLOOMFIELD, CONN.

sound principle that commanders should tell subordinate commanders what is their mission, but refrain from telling them how to do it. However, this sound principle becomes a source of trouble when applied to staff. If the staff is truly an extension of the commander's self and does for him the things he would do for himself, then the staff must do the job as he would do it.

My point is that a staff must be required to operate in a particular manner and pattern because it is an extension of an individual and therefore must operate as he would. This means that a commander should tell his staff not only what he wants done, but *how* he wants it done. The same freedom granted to a commander to decide how to perform a mission cannot safely be granted to a staff.

In attempting to set standards by which to measure the success of a unit, we are, as Colonel Kowalski points out, faced with the lack of any easy yardstick. Since this is so, great weight must be placed on the personal views and evaluations of the inspector. In this situation, since justice to a commander demands that this weight be given by his senior and not by staff officers holding neither responsibility for results nor the broad knowledge, experience and background of the commander concerned, only the commander is in a position to judge his subordinate.

The staff invades the command area when it judges and evaluates the success of subordinate commands. The only person who should judge whether or not commander A is successfully executing his mission is his senior commander. Staff visits to collect specific information—when specifically directed by the senior—have their place. But they should not degenerate into fishing trips in which staff appears to assume responsibility for the success or failure of subordinate elements.

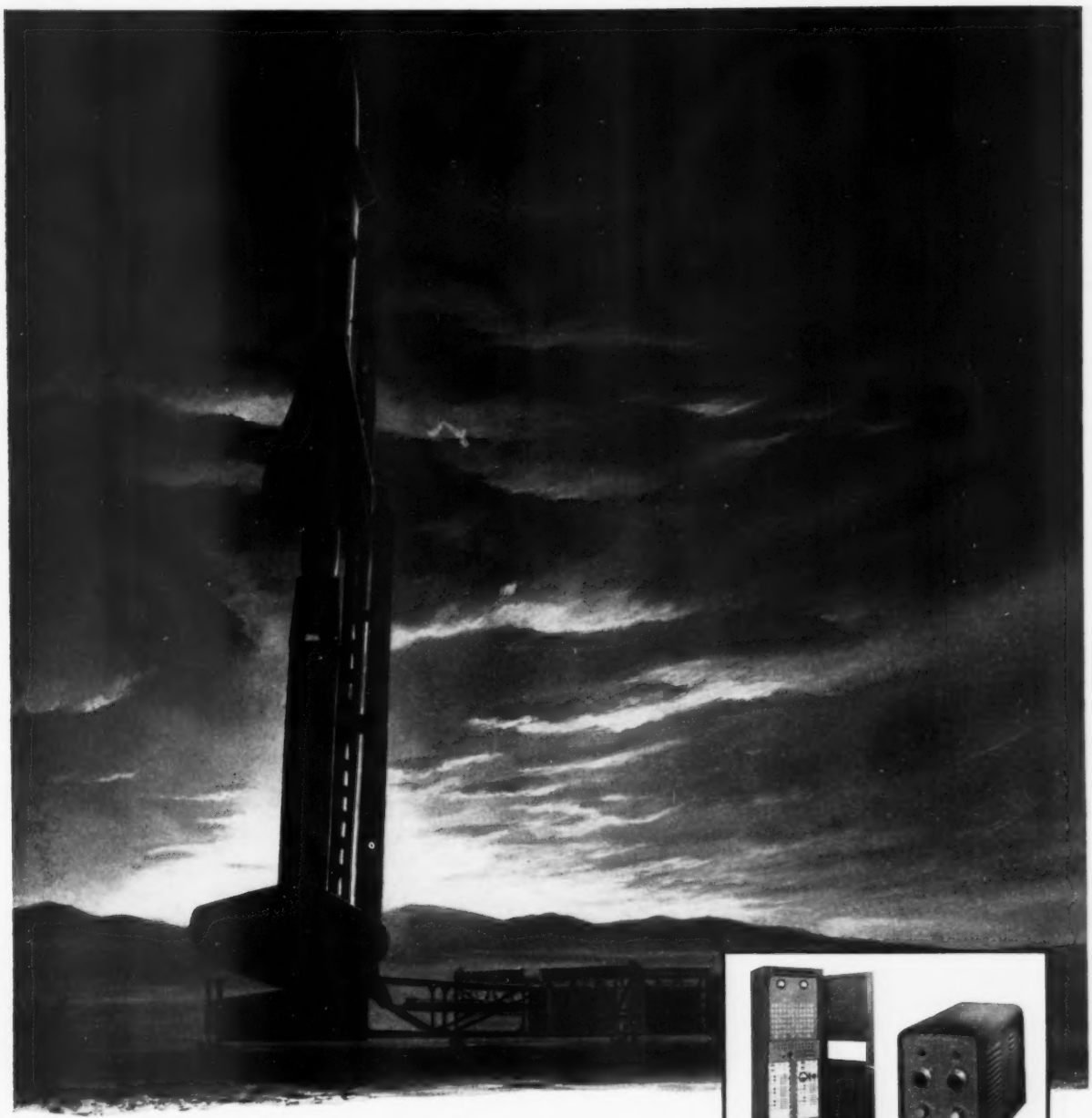
Each commander can apply and practice some degree of decentralization even though his commander and staff insist on holding tight reins. Every commander can require his staff to act as a staff and not as groups of semi-independent commanders.

COL. H. F. SYKES, JR.
Director, ERDL
Fort Belvoir, Va.

Pox on those Patches

● I have some questions about one of those photographs in "Virginia Town Supports Army Reserve" [October].

Would Captain Pondelicek be out of uniform, since D/A did not authorize the 1st Marine Division insignia as outlined in paragraph 22, SR 600-60-1? Where within CONUS is there a Seventh Army area? It seems Captain Jennings is wearing that famous insignia? And if my eyes are still 20/20, Corporal Morgan is wear-



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ing the insignia of the 157th Division, one that never existed in an equally nonexistent phantom army of World War II. Or is there such a division now? Corporal Morgan should also position his crossed

A question about shoulder patches

muskets insignia in a Quartermaster Company correctly, or we Infantrymen will lose our distinction.

CWO HERBERT A. MILLER
RR 5
Jasper, Ind.

• *Current uniform regulations authorize wearing of insignia on the right shoulder by "individuals who served overseas with United States Army organizations" between the terminal dates of World Wars I and II and Korea. However, Captain Pondelicek may be anticipating an official study now under way to have this authorization extended to cover service in any of our armed services. In view of the great job he is doing for the Army Reserve, let's look the other way.*

To meet a deadline, this group was brought together hurriedly to pose for the picture. Captain Jennings, who is to command the 978th QM Company when it is activated, left his grocery business to don his wartime uniform which still bore Seventh Army insignia.

Corporal Morgan's insignia, while it resembles that of the phantom 157th Division, is that of the 108th Infantry Division, allocated to the area of southern Virginia, North Carolina and Tennessee, and to which he was assigned. He has been awarded the DOD Reserve Award for encouraging participation in the Reserve program and for promotional activitives concerning the Reserve.

ARMY again salutes the Galax group for the fine job they are doing to push USAR in their community.

Preferential Treatment

• I read with interest and amusement Captain Herbert's "Myopia Amalgamated" [August], and the comment on it by S. Q. LaPias [September].

My dear old grandmother had an old cat she dearly loved, but occasionally she would step on his tail or paw and cause him intense pain and emotional upset. The cat never learned to express his discomfort other than by a loud, complaining yell.

It appears that S. Q. LaPias rests his case on the premise that because a doctor can make more money in civilian life, he should be paid a rate higher than others of equal rank, and be promoted ahead of those in the other arms and service. Why pay him more and why accelerate his promotion? Don't we all live in the USA? Give him four years for promotion and pay purposes, but don't place him in a special category. The CPA, the engineer and men of other professions spend a few years too in getting their knowledge and certificate to practice, but in the military service they are on an equal basis.

The doctor may or may not realize that the USMA cadet, who later becomes an Army officer, is also dedicated to saving lives. More than that, he is dedicated to saving *all* the lives in his country. He willingly enters a life that calls for a lifetime of study, and work on a 24-hours-a-day, seven-days-a-week basis. He does this (at the same rate of pay as his fellows) knowing he and his family will never be settled until after retirement—if he lives that long. He is not enticed by promises of an easy life, immunity from hardship, and a huge salary. He enjoys his profession, and complains with a grin and tongue in cheek.

Captain Herbert's article had nothing against the AMA or the Medical Corps. I think what it objected to is a system which allows preferential treatment to one group when there is no apparent or understandable reason for it.

LT. COL. SIDNEY S. EASON
Box 4913
Fort Harrison, Ind.

Artillery's Patron Saint

• Thank you for the material on Saint Barbara. We are frequently asked about this patron saint of the Artillery. Recent enshrinement of a statue of Saint Barbara in the Catholic chapel has sent a deluge of questions our way which we have been able to answer from the reprints of articles you sent.

HELEN RATERMANN
Library, AA&GMS Library
Fort Bliss, Texas

"The Military Mind"

• A few short years ago we were reading disparagements about "the military mind."

With the general search by large industries for prominent military names to grace their official staffs, these dubious ditties have faded out.

Today I read a comment of far different import. I refer you to the editorial by David Lawrence in the 26 October issue of *U. S. News & World Report.*

MAJOR W. E. ROSEBUSH
411 E. Washington St.
Appleton, Wisc.

Rugged comrade at arms...

the 'Jeep' by Willys

Willys Motors, makers of the famous Universal 'Jeep', salutes the Association of the U. S. Army.

Developed during World War II, the 'Jeep' has gained increasing recognition in many branches of the service because of its ruggedness and versatility. It has also gained acceptance for the whole 'Jeep' family of 4-wheel-drive vehicles. In fact, in distant parts of the world, the 'Jeep' family of vehicles has become a symbol of American military prowess and civil leadership.

Thanks to 4-wheel-drive, the 'Jeep' family of vehicles goes through sand, mud and snow, over bad roads and no roads, where ordinary vehicles can't go. It is rendering distinguished service to our armed forces in many parts of the world.

The 'Jeep' family

4-wheel-drive Universal 'Jeep'

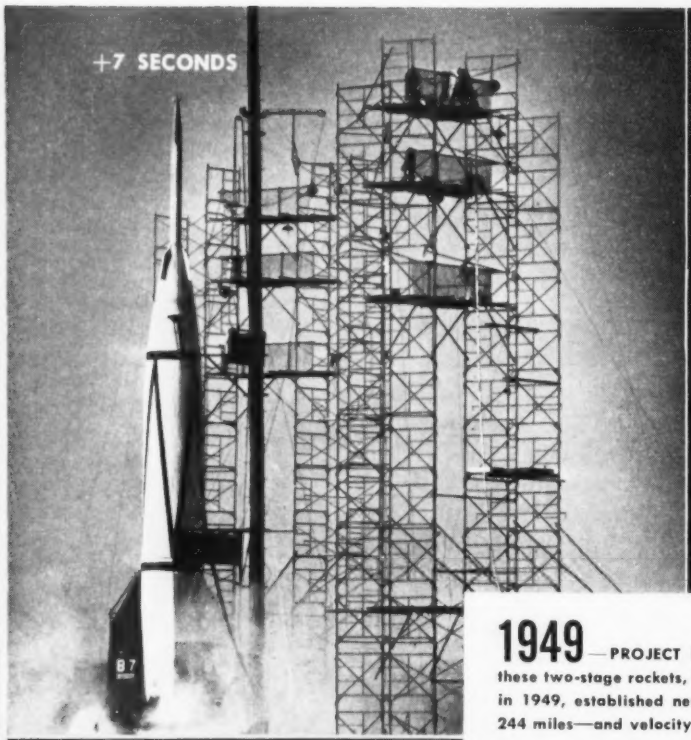
'Jeep' 4-wheel-drive Truck

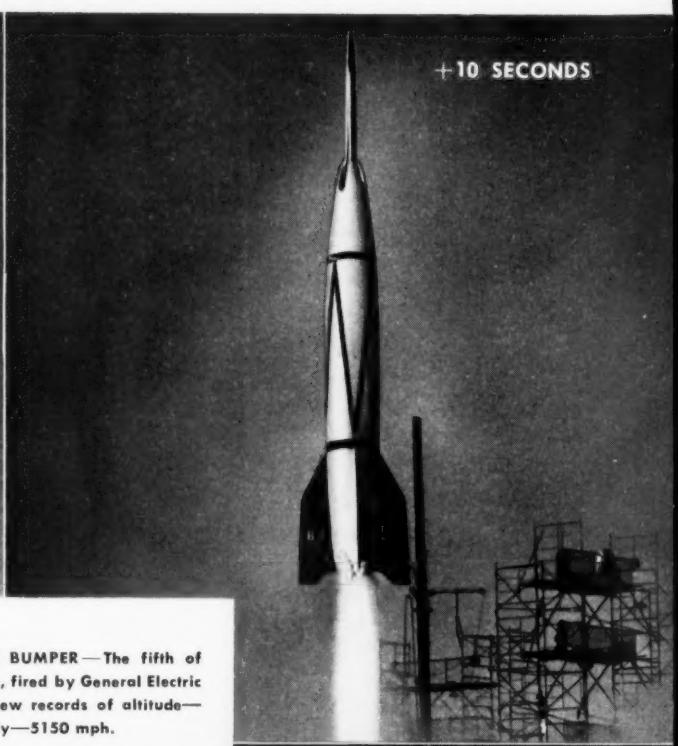
'Jeep' 4-wheel-drive Utility Wagon

'Jeep' 4-wheel-drive Sedan Delivery

Willys...world's largest manufacturer of 4-wheel-drive vehicles

How General Electric Experience





1949 — PROJECT BUMPER — The fifth of these two-stage rockets, fired by General Electric in 1949, established new records of altitude—244 miles—and velocity—5150 mph.

Advances Missile Technology

General Electric's Project Bumper established new records of altitude and velocity. But far more important is the valuable research data compiled in the successful completion of the Bumper project. Many problems were overcome with Bumper—problems in temperature, telemetry, separation, and aerodynamics. Bumper helped solve the problems of communicating with missiles at extreme altitudes, and was a major preliminary step in the development of a satellite. In solving these and other problems, General Electric has contributed a wealth of research data to the missile industry—information that is being utilized on the nation's top priority ballistic missile project.

General Electric's Missile & Ordnance Systems Department presently is working on an Air Force prime contract to develop the ICBM nose cone. Programs are being carried out in such varied fields as communications, hypersonics, metallurgy, mathematics, and thermodynamics to support this nose cone contact.

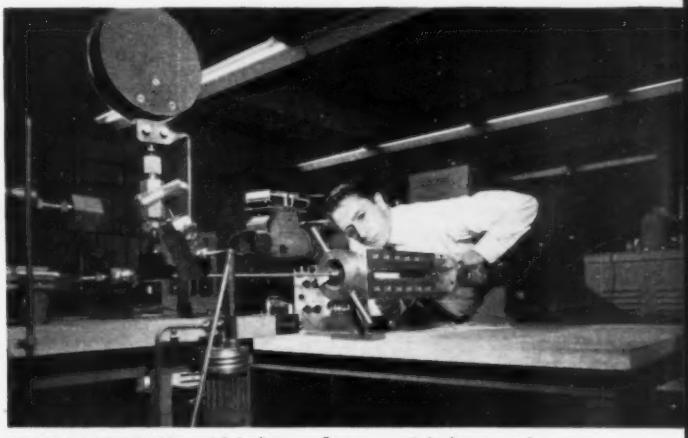
General Electric has formed the Missile & Ordnance Systems Department to act as a Company focal point for large, highly complex missile projects. Scientists in the new department, backed up by the vast resources of many General Electric operating departments and laboratories, are currently working to solve the perplexing problems associated with the ICBM nose cone and other missile projects.

By focusing this wide range of specialized talents of General Electric personnel on highly complex defense system problems, the Missile & Ordnance Systems Department is making significant contributions to America's defense program. Section 224-5, General Electric Co., Schenectady 5, New York.

ENGINEERS: G.E.'s Missile & Ordnance Systems Department is currently expanding its staff of highly skilled engineers and scientists. If you have a background of successful creative engineering, send your qualifications to: Mr. George Metcalf, General Manager, Missile & Ordnance Systems Department, General Electric Co., 3198 Chestnut St., Philadelphia, Pa.

TODAY—**CONTINUED RESEARCH AND EXPERIMENTATION in advanced missiles and missile systems is helping solve such advanced problems as development of the ICBM nose cone. Headquarters for General Electric's participation in these programs is the Missile & Ordnance Systems Department in Philadelphia, Pa.**

MR. ROBERT P. HAVILAND, Flight Test Engineer at MOSD, directed Project Bumper and other advanced programs, gaining valuable experience which he is currently applying to present missile programs.



DR. YUSUF A. YOLER—widely known for research in hypersonics—is currently engaged in the design and development of wind tunnels, shock tunnels, mass accelerators, and other facilities for continued progress in missile systems.

Progress Is Our Most Important Product

GENERAL ELECTRIC

THE ARMY'S MONTH

Our comment this month is confined to a few—of many possible—aspects of our Second Annual Meeting.

What is War?

On the Sunday following AUSA's highly successful annual meeting—that would be 28 October—one of your editors was reading a review of the provocative *Arms and Men* by Walter Millis. As a springboard to his discussion of the book the reviewer spoke of the idiocy of supposing that armed conflict was possible in a world of nuclear weapons. That kind of statement, read against the background of the Sunday morning headlines about uprisings in Poland and Hungary and ominous tensions in the Middle East (which were to soon burst into conflict), seemed rather idiotic itself and raises the question of whether too many Americans are still bemused by the idea that war can only mean exterminate or be exterminated.

The reviewer of Mr. Millis's book seemed to miss one of the major points made by Mr. Millis. This is that since the world seems unable to hit upon a substitute for the social utility of war it would be wise to try to harness war for what benefits there may be in it for the human race. That is to say wars can and ought to be limited rather than total.

This is more than a matter of semantics or a definition of war. It is a question of national military policy. And that is the major field of inquiry made by Mr. Millis in his fine book. As Mr. Millis tells the story of American military policy from Colonial days, we are reminded of the saying that the British Empire was created in a fit of absent-mindedness. That in a way seems to be the way of American military policy. Perhaps, more accurately, it could be said, like Topsy, to have "just growed." It was certainly American, but most of the time it wasn't very military and less often than that deliberate policy.

It would be unkind and inaccurate to say that the absent-mindedness that built the Empire also started it on its descent, but it is neither unkind nor inaccurate to say that in today's world, American military policy has to be directed—that it can't be permitted to drift either into impotency or superpotency. Survival demands something else.

EXTRA COPIES AVAILABLE

During the AUSA meeting the staff received numerous requests for copies of the addresses of the speakers. Unfortunately the supply of texts by the Department of Defense PID was limited. To take care of these requests we have increased the print order of this issue. If you have need for extra copies, please let us know. We'll do our best to supply you within the limits of the available supply.

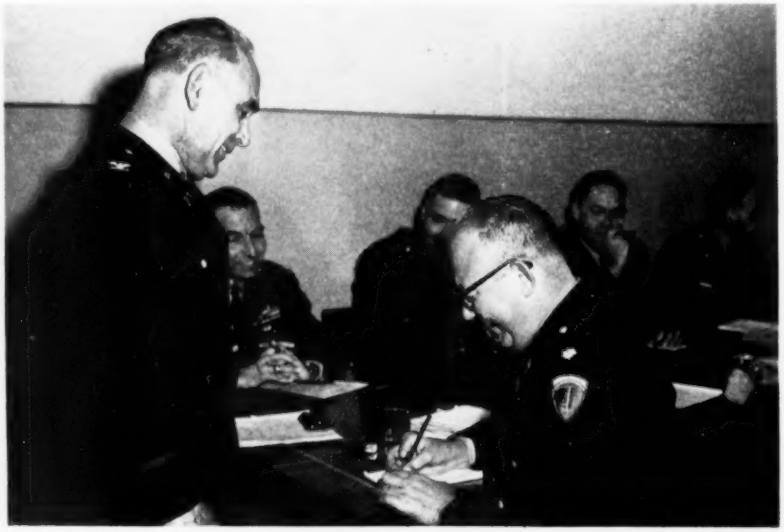
This brings us back to those headlines from Hungary, Poland and the Middle East. Because atomic bombs haven't been used are we to take it that there was no war in Budapest where several hundred Red tanks fired on Hungarians and some of those tanks were destroyed by valorous Hungarians? Or that there has been no war between Israeli and Egypt? Or that the Anglo-French effort against Suez wasn't the application of military force.

Shattered Faith

A public example of successful unification occurred during the AUSA meeting. One of the convoys of Army busses running from the Sheraton-Park Hotel to Fort Myer was escorted by the Armed Forces Police in the person of a Chief Petty Officer driving an Air Force patrol car.

A Military Police Corps lieutenant colonel in one of the busses observed that this wasn't an out of the ordinary example of operations of the Armed Forces Police. It did remind us though

At Kaiserslautern, Germany, Maj. Andrew J. Miller became the first of a 100 per cent enrollment of all Provost Marshal officers of the Western Area Command in the Association of the U. S. Army. Looking on is Col. A. C. Cheyne and other Provost Marshal officers of the area.



"LIFE INSURANCE" The preservation of the peace and security of this nation depends upon two things: Our diplomatic wisdom in a troubled world, and the power to protect ourselves if peaceful negotiation should fail.

Point 2 is part of *our* responsibility. This is the Martin-U.S. Air Force TITAN program... one of the most advanced and critically important development projects in America today... an Inter-Continental Ballistic Missile conceived in peace and dedicated to the proposition that no aggressor shall ever take the life of this country.

MARTIN
BALTIMORE · DENVER

that in many areas unification is working fine and it is unfortunate that so few of them are on public view. While we were having these pleasant and constructive thoughts, the lieutenant colonel interrupted with the observation that in his area (not Washington), "the Air Force isn't carrying its share of the military police burden." So once again our faith in Unification was shattered.

Perception

S. L. A. Marshall, who has certainly proved he knows his way around the battlefield, demonstrated during the AUSA meeting that he understands the nature and use of force at higher levels. As a member of the discussion panel General Marshall was asked to comment on the events taking place in Poland and Hungary. He was emphatic in insisting that the Soviet forces could not withdraw from either country. He said this at a time when it looked like maybe the Kremlin was going to be lenient and permit a little "Titoism." But "Slam" Marshall saw it differently and, as the next few days were to reveal, correctly. "Once the Russians withdraw," said he, "the Soviet postwar security system collapses at its base . . . there would be a drift by these states toward neutralism and away from the Soviet system . . . my whole point [is] that the Soviet cannot pull back, they cannot withdraw from their situation. They are in a sense captive to the situation which they created."

General Officer Shifts

Maj. Gen. Raleigh R. Hendrix to Hq ARAACOM . . . **Maj. Gen. Earle Standlee** to Brooke AMC . . . **Brig. Gen. Charles P. Bixel** to Hq Second Army . . . **Brig. Gen. Edward A. Brown** to OCE . . . **Brig. Gen. Gunnar C. Carlson** to MAAG Vietnam . . . **Brig. Gen. Joseph B. Crawford** to 9th Infantry Division . . . **Brig. Gen. James M. Epperly** to OTSG . . . **Brig. Gen. James P. Hannigan** to Hq USAFFE . . . **Brig. Gen. John O. Kilgore** to Fort Lewis, Wash. . . . **Brig. Gen. James I. King** to Armor School . . . **Brig. Gen. Robert V. Lee** to Deputy TAG . . . **Brig. Gen. Mervyn M. Magee** to CMD, OTAG . . . **Brig. Gen. William W. Quinn** to 4th Infantry Division . . . **Brig. Gen. Tom V. Stayton** to Hq ARAACOM . . . **Brig. Gen. William J. Thompson** to Hq EUCOM . . . **Brig. Gen. Robert C. Tripp** to Assistant COT (Mil Ops) . . . **Brig. Gen. Richard J. Werner** to Hq USAFFE.

Retirements

Maj. Gen. Walter J. Muller . . . **Maj. Gen. Oscar P. Snyder** . . . **Maj. Gen. Patrick H. Tansey** . . . **Brig. Gen. Rothwell H. Brown** . . . **Brig. Gen. Albert G. Franklin** . . . **Brig. Gen. Walter B. Larew** . . . **Brig. Gen. Mason H. Lucas** . . . **Brig. Gen. Charles A. Sheldon.**

Imagination and Zeal

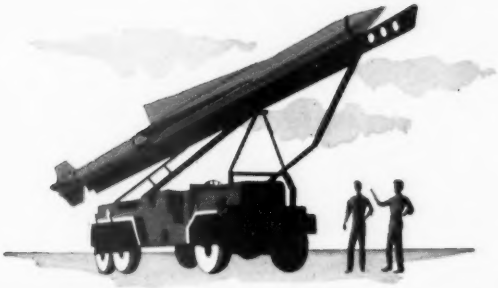
Dr. Edward Teller *(Page 63)* demonstrated to his AUSA audience that he isn't the kind of a man to be frightened by what he helped create. "The thinking of many has been paralyzed by this prospect"—of nuclear warfare, he said, but he plainly isn't one of them. Instead he pleads for imagination—of the kind that split the atom! Imagination that would recognize that atomic power is plentiful and that it can be harnessed to man's requirements. Imagination that would create Army forces of extreme mobility, capable of fast action over large areas. Imagination that would comprehend that the soldier of the Futurarmy must be a man with all of the solid soldierly virtues of "courage, endurance, self-reliance and discipline" but also with "additional and exceptional gifts."

Can the Army hope to get these men? The answer is that it can if it will imaginatively and forcefully present its case.

To get them it will first have to convince the citizens of the country that the Army's requirements are necessary and justifiable. Then it will have to convince the individual that Army service offers the opportunity for stimulating, useful service and a full and abundant life.

Here is a project that every arm, service and branch can agree on and get together on. The infantryman, artilleryman, tanker, engineer, signalman, ordnanceman, chemist, quartermaster, transportation man, adjutant, medic, provost marshal, JAG and chaplain—all have an interest and an obligation in this. As General McAnsh once wrote in a similar vein: "let's get cracking."

Paratroopers exit from H-21 helicopter during a demonstration at Fort Benning. The troopers say they like jumping from the whirly-bird better than from fixed-wing craft.

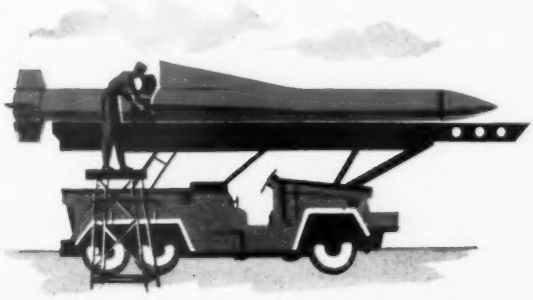


1002 Before launching this missile hundreds of tests must be made — a process usually requiring several hours and highly-trained technicians.

1003 Sperry Check-Out Equipment built into truck is readily moved to launching area to handle all tests.

1008 Inside truck the operator sits at console and by merely pressing button sees micro-filmed information for operational decisions on each malfunction.

1009 Pressing another button operator receives card showing adjustment or repair required and detailed instructions.



1025 With complete instructions for repairs, the check-out is rapidly and accurately completed.

1030 Missile is launched with assurance that its complex mechanisms are operating properly.

SPERRY AUTOMATIC CHECK-OUT EQUIPMENT

Keeps Weapons Fit to Fight

Saves time, cost . . . requires no highly trained personnel

• Keeping a weapon system operable at all times requires complex testing and evaluating. With Sperry Automatic Check-Out Equipment, this procedure can be simplified . . . time reduced to a minimum.

• *Complete* system test can be made most economically and without highly trained personnel. This includes electrical, hydraulic, pneumatic, stabilization, guidance, arming and propulsion components.

• Our Microwave Electronics Division can solve your problems in weapon systems' evaluation.

MICROWAVE ELECTRONICS DIVISION

SPERRY GYROSCOPE COMPANY

Great Neck, New York

BROOKLYN • CLEVELAND • NEW ORLEANS • LOS ANGELES • SEATTLE • SAN FRANCISCO.
IN CANADA: SPERRY GYROSCOPE COMPANY OF CANADA, LIMITED, MONTREAL, QUEBEC

Combat commuter –

at 8 second intervals

In recent tests duplicating actual assault landings, Fairchild C-123's gave dramatic evidence of performance under combat conditions.

The target—a rough, ungraded field—was ringed by "hostile" forces. Heavily laden, the C-123's approached the field at 500 ft. altitude—too low for heavy A.A. guns, too high for small-arms fire. Just short of their touchdown point, the highly maneuverable assault transports swept down, flaring out just as they flashed over the clearing's edge. Two minutes later, twelve C-123's had rolled to a halt—troops and trucks were fanning out to their assigned positions. The C-123's had landed at *8 second intervals!*

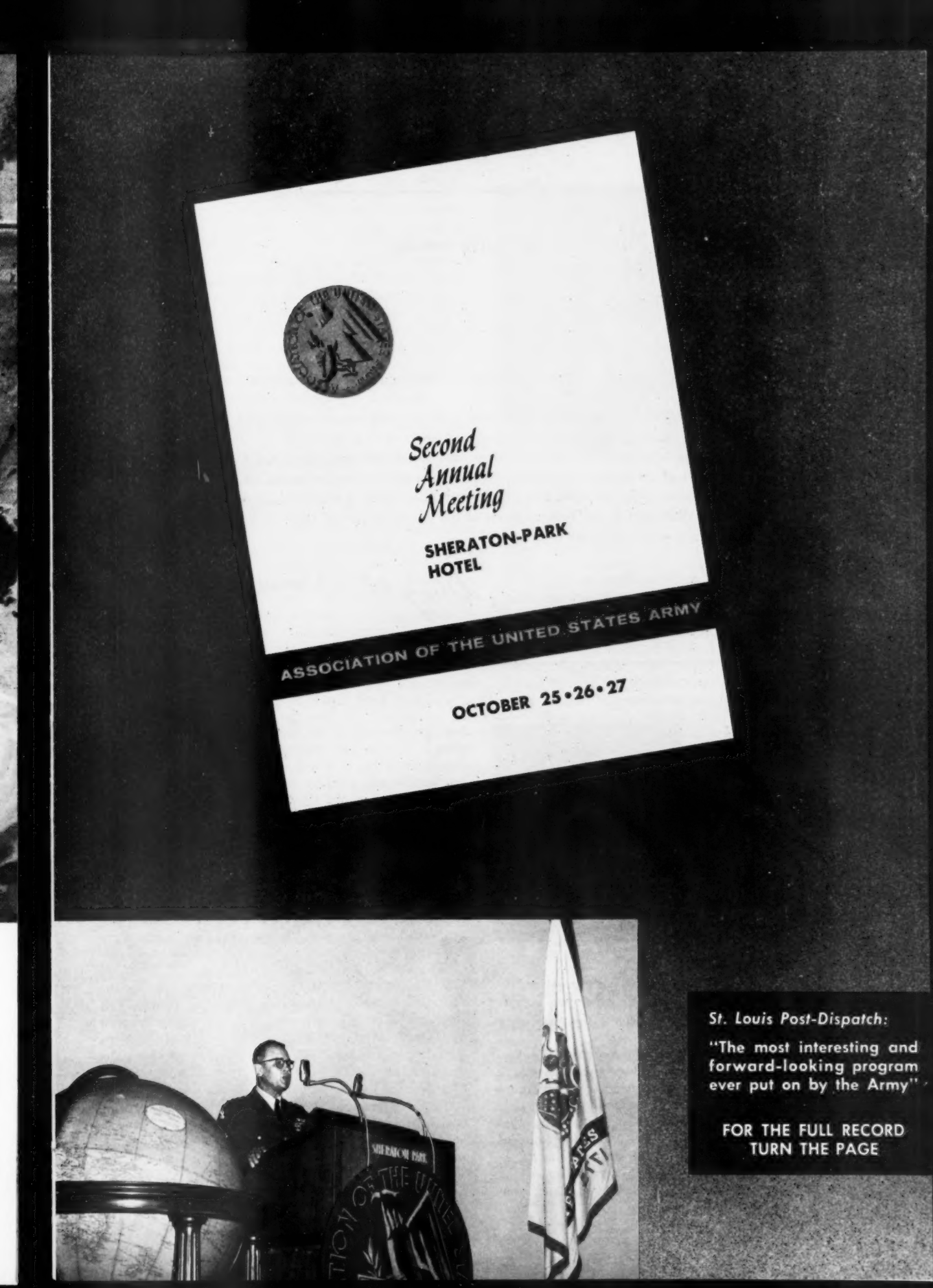
This dramatic demonstration of pilot and crew proficiency was made possible by C-123 maneuverability, short field performance and utter reliability—all three, features of Fairchild aircraft designs.

FAIRCHILD

AIRCRAFT DIVISION • HAGERSTOWN 10, MARYLAND

A Division of Fairchild Engine and Airplane Corporation

...WHERE THE FUTURE IS MEASURED IN LIGHT-YEARS!



St. Louis Post-Dispatch:

"The most interesting and forward-looking program ever put on by the Army"

FOR THE FULL RECORD
TURN THE PAGE

THE WHITE HOUSE

25 October 1956

Lt. Gen. W. L. Weible
Deputy Chief of Staff for Personnel
Department of the Army
Washington, D. C.

Please give my greetings to the Second Annual Meeting of the Association of the United States Army.

In your deliberations, you will be concerned with the most recent technological advances in matériel and their influence upon the nature and tactics of your profession. But as you consider these, keep uppermost in your mind those matters of the spirit which have made our Army the finest in the world: Leadership, discipline and devoted loyalty to our country.

Congratulations to the Association of The United States Army for its receptiveness to new ideas, and its dedication to the best traditions of the service. Together, these make for the security of the nation and the peace of the world.

Dwight D. Eisenhower

General
MAXWELL D. TAYLOR
Chief of Staff, USA

'SAFETY LIES FORWARD'— TECHNOLOGICALLY AND TACTICALLY

DISTINGUISHED guests, members of the Association of the United States Army:

I am impressed with the great progress which this Association has made since its first meeting. The Army and its alumni have been relatively slow, up to now, in forming a unified association, but, having decided to do so a short year ago, its progress has been most encouraging. The growing membership, the vigor, and the dynamic outlook of the Association are indices of the state of mind of the community of friends of the United States Army.

This Association should be, as the United States Army must be, devoted to the cause of National Defense. Although directing its interest primarily at the Army, it should never by its actions suggest a Service partisanship unrelated to the need for balanced strength on the land, in the air, and on the sea. By balanced strength I do not mean an equal distribution of dollars but rather a conducted effort to achieve a tri-dimensional deterrence of war. Through its meetings, its magazine, its discussions and its studies, the Association provides an opportunity for an interchange of ideas essential in these days of changing strategical and tactical concepts. I am confident that the Army Association will play an increasingly important role as a well-informed national organization for the interpretation of the problems and progress of the Army to the public of our great Nation.

The agenda for this meeting amounts to a report by the Army on its hopes and aspirations for the future. This emphasis on the future is appropriate on the occasion of the transfer of the Association to the able hands of its civilian members. In addition to its role in interpreting the Army's mission to the public, this Association should ever be a qualified critic of the Army. To be a critic is to carry a heavy responsibility for being well informed. The Army is changing rapidly. Technology is opening up vistas of new possibilities in terms of new weapons, new equipment, and new techniques at a rate which challenges the capacity of the best minds and most vivid imaginations. The Association should follow these changes carefully and be alert

to the implications of the problems which attend them.

The exchange of information between the Association and the Army Staff should not stop with this meeting nor for that matter be confined to annual meetings. I am confident that within the bounds of propriety and security, a continuous and close flow of legitimate information can be established. During this meeting I understand that members of the Army Staff will discuss with you a wide range of Army activities related to the requirements of modern warfare. As a background for the more detailed discussion which General Eddleman will conduct, I should like to give you some of the thoughts which underlie the Army's approach to the discharge of its duties in the future.

Assessing the requirements of the Futurarmy

Perhaps the most pressing problem which the Army faces today is to assess the impact of atomic-bearing missiles and projectiles on the nature of the land battle, and then, to effect a proper adjustment of organization, techniques, equipment, and weapons. There is a simultaneous need to evaluate the continuing requirement for so-called conventional weapons. There has been much talk about the impossibility, mostly from the point of view of expense, of maintaining one set of "old fashioned" forces to fight non-atomic wars and another set of ultra modern forces to fight atomic wars. I do not interpret the problem in these terms. It is possible, indeed essential, to inject into a single set of forces an either-or capability, an ability to use atomic weapons as the situation requires and as proper authority determines, if the Army is to be able to discharge its role in future warfare. This duality—the built-in capability to use atomic and non-atomic weapons in any combination—is not a straddling of the issue but, rather, a basic necessity for Army forces. There will never again be a war involving the major powers without the use or the threat of use of atomic weapons. Until they are used, the threat will hang over every engagement, and will impose a requirement for constant readiness for an atomic surprise. A sure way to encourage an enemy to use atomic weapons would be to confront him with a force unprepared for atomic action.

Gen. Taylor and SFC and Mrs. Floyd Davis

Maj. Gen. Donald P. Booth greets Adm. Arthur Radford

The atomic weapon, coupled with the modern missile, permits the massing of proportionate forces to deliver that massed fire. This is a new aspect of ground warfare. The Army which adapts itself first to it and develops some relative advantages from it will prevail in modern battle.

On the other hand, Army forces must not be completely dependent on atomic weapons. There are many conceivable situations when it may be to our own interest to establish restrictions on the use of these destructive weapons. It is a suggestive thought that in the resistance to aggression we are likely to find ourselves in a friendly country where we have come in response to an appeal for help. We will have every reason to wish to cause minimum destruction to accomplish our military ends. Hence, the indispensable either-or capability.

In developing future Army forces adaptable to the atomic battlefield, we are impressed with the need to accomplish four things.

First, we must increase our ability to locate atomic targets on the battlefield.

Second, we must increase our ability to deliver atomic fires.

Third, we must reduce our susceptibility to detection by the enemy.

Fourth, we must increase our ability to exploit our own firepower.

Let us discuss each of these problems in some detail.

The problem of long-range target acquisition

I stated that we must develop and hold a relative advantage in the field of so-called target acquisition. Without this advantage, relative superiority in atomic weapons has little meaning. Past difficulties in locating targets for conventional weapons have been compounded in the case of the vastly more efficient atomic weapons. The expense of these new weapons, their great destructiveness, and their potential hazard to our own forces are potent reasons against their promiscuous employment. Furthermore, the range of missiles far exceed the range of current artillery and adds to the acquisition-observation difficulty.

Visiting the industrial exhibits, General Taylor watches a demonstration of electronic equipment

Thus, long-range target acquisition is technologically one of the most complex of the major scientific problems confronting the Army. Within the limits of available funds, research and development effort is being accelerated in the fields of radar, infrared, acoustics, photography, and general electronics. We foresee the possibility of obtaining effective location devices which will vastly extend the Army's present observation capabilities. At the same time, we are asking the Air Force to reinforce its efforts to help us find all targets which fall within range of our improved Army weapons. This is the field in which the Air Force can provide in the future the most useful form of close support.

It will probably always be difficult to discover targets among the forces of an alert and well-trained enemy. The efforts of technology will never suffice alone; they must be supplemented by tactics designed to cause the enemy to create remunerative targets. It may be not too much to say that the purpose of land maneuver tends to become that of finding or forming suitable enemy atomic targets, then of exploiting the effect of atomic fire. Thus it is that the atomic weapons and the forces which they support are completely interdependent. Atomic weapons in themselves are inconclusive. In the final analysis, sizeable ground forces must be used if the enemy, his people, and his land are to be brought under control. Atomic weapons to be effective must be used in conjunction with land operations. This fact is basic to the organization of modern armies and is in direct contradiction to the mistaken concept that atomic weapons can somehow replace ground forces, whereas in actuality they only support them.

Diversified delivery of low-yield atomic warheads

Not only must we improve our ability to discover targets, but also we must hold and increase our current advantage in relative abilities to deliver atomic fires. The continued development of a wide range of low-yield tactical atomic weapons and diversified delivery means is essential. General Gavin and his colleagues will have considerable to say about missiles under development which will, in the not too distant future, add greatly to the Army's offensive capabilities. The tactical missile family is already reducing the Army's requirement for close combat air support. This trend will continue. Its pace will be determined largely by the rate of progress in target acquisition techniques.

While on the subject of missiles I want to remind you that the Army's organization is readily adaptable to the support of missile operations of all kinds. It has already in its structure most of the elements which will be needed to reconnoiter and survey missile sites, transport missiles thereto, camouflage their positions, and defend them from hostile interference on the ground. All these supporting operations are indispensable; the Army now has units already in its organic structure to discharge these functions. Let me amplify this point.

The ability to locate, occupy and support constantly shifting missile sites in remote mountain, jungle or forest areas requires an extremely flexible supporting organization. The Army possesses sufficient land transport, sufficently mobile supply, ordnance, and medical echelons to support mobile or remotely dispersed missile units over large land distances.

The Army's Engineer organization is well equipped to perform the necessary protective construction work at missile sites as well as the maintenance of routes to those sites. Perhaps most important, the Engineers possess the capability for basic location survey on which the accuracy and, therefore, the ultimate usefulness of the missile so largely depends.

In order to command and control widely dispersed missile units, a requirement for mobile and highly reliable electronic communications is apparent. The kind of communications required is precisely that which the Army has already developed to a high degree of efficiency for the support of its fast-moving battle groups.

Protection of our own missile sites

It is likely that under certain conditions missile sites may be subjected to either guerrilla or airborne attack. The requirement for locating launching sites in remote areas where cover, concealment and deception will be facilitated will expose these sites to partisan interference. Therefore, some form of ground protection must be provided locally. The Army obviously is ready to provide ground protection at weapons sites. There will also be a requirement for anti-aircraft protection, probably by mobile surface-to-air missile

units. The Army has a point defense capability in its mobile surface-to-air missiles which can be coupled with the surface-to-surface missile units for protection against air attack. Lastly, the over-all security of the missile units depends on the ability of the Army forces to hold the general area in which the missile forces operate. The accomplishment of this is a fundamental Army capability.

Paralleling the increase in its atomic capacity, the Army must aggressively seek ways and means of reducing its susceptibility to detection by an enemy who may possess the atomic means to destroy any important element of our force which he is able to find.

Modern armies, with their elaborate equipment, are difficult to conceal, as are their logistic supporting echelons in the rear. In this respect they are at a significant disadvantage with relatively primitive forces such as those we fought in Korea. Such forces have inherent characteristics which significantly reduce their susceptibility to detection. They have a protective coloration which results from their lesser dependence upon elaborate and massive supporting elements, the austerity of their logistical support, and their innate cunning and patience. These characteristics permit maximum utilization of the advantages offered by jungles and mountains in areas where peripheral wars would most likely break out, and thus enhance in such places the difficulties of target acquisition.

'Safety lies forward'—technologically as well as tactically

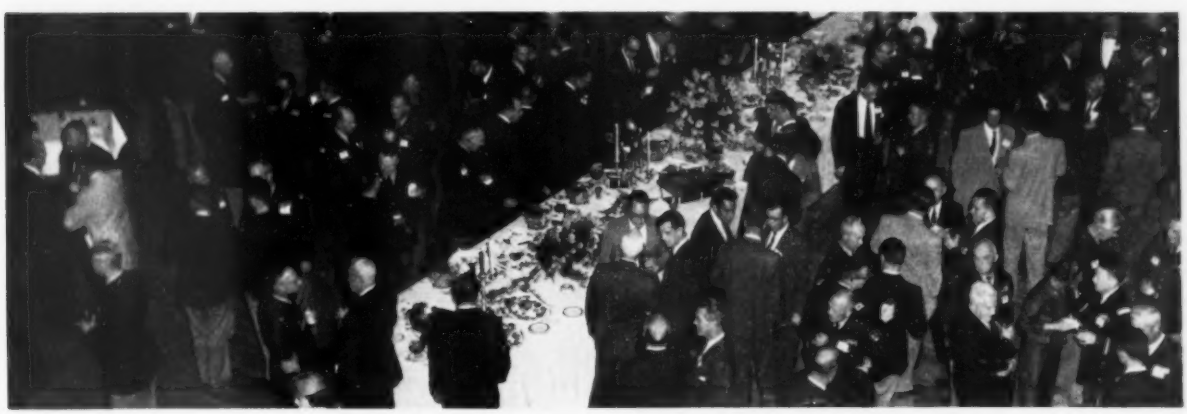
Lacking these natural assets and unwilling to decrease susceptibility to detection by going primitive as it were, we are faced with a great challenge to our ingenuity to control our own tendency to present lucrative atomic targets. Rejecting retrogression as a means to safety, we must seek solution in the principle that "safety lies forward," technologically as well as tactically. The improvement of cross-country mobility holds forth the best prospects of reducing the susceptibility to enemy detection of Army combat forces. This mobility may eventually be attained largely by low-flying air vehicles. The susceptibility to detection of our logistic bases is a primary problem which deserves our unremitting effort to reduce by any and all means. Austerity is essential but austerity alone is not enough. Aerial transport, nuclear engines, solid fuel—these are the directions in which we must go. The ability to disperse and hide, coupled with the ability to converge and fight, requires mobility of a kind we have only begun to appreciate. Too often in the past the mobility we sought as protection against atomic fires simply increased the number of vehicles and amount of equipment in the battle zone and, by so doing, created for the enemy the potential targets we seek to avoid.

Full exploitation requires tactical and logistic mobility

A final consideration related to the compelling necessity to reduce our vulnerability to atomic fire is its need to exploit rapidly the effects of our own fire. Increased tactical mobility and increased mechanization of the logistics system are two devices already mentioned which contribute to this end. Rapidity of offensive reaction must stem not only from an increased mobility and streamlined command echelon, but also from the ability of small battle groups to operate independently for long periods over great distances, coupled with an ability to live dispersed and to concentrate rapidly to fight.

Thus, the modern Army must show progress in the four critical areas I mentioned. It must have an organic target acquisition capability, organic atomic firepower, and be harder to find and more difficult to destroy. It must be highly mobile to exploit its own destructive firepower. We do not today have all the ideal equipment for such an Army. We have made substantial progress, however, and we do know what we want and our research effort is directed toward our objectives.

I WOULD like to stress that nothing we have discovered or nothing that we expect to discover will reduce the need for brave men to fight our battles under conditions of hazard and hardship. New weapons and machines will serve our soldiers without replacing them. The atomic weapon is an impressive newcomer to the battlefield; however, it possesses few independent virtues. The effectiveness of atomic fires depends upon the continuing ability



A corner of Sheraton Hall during the reception honoring General Taylor

of the combat forces to influence the action to the extent required to shield the atomic fire units, hold vital areas, force the occurrence of lucrative atomic targets, and exploit the effects of atomic fires. If conventional forces are unable to perform these essential military tasks, then the battle will be lost regardless of the number of atomic support units involved. The atomic weapon, the ballistic missile, and all the panoply of military weaponry are means for applying power to be integrated into but not substituted for your modern Army.

Lieutenant General
C. D. EDDLEMAN
Deputy Chief of Staff for Military Operations

MEN, MISSILES AND ATOMICS ON THE FUTURARMY BATTLEFIELD

DISTINGUISHED guests; members of the Association of the United States Army.

I am pleased with the opportunity to discuss with you some of the tactical concepts, weapons and equipment, and organizations being developed by your Army to meet the military challenge of the future. Within the framework established by General Taylor, we will examine present capabilities and future trends.

We are in an era of major evolutionary change. The most significant factors affecting the future operations of the Army are new developments in the fields of firepower, mobility, and communications, with emphasis on atomic weapons, guided missiles, and Army aviation. As General Taylor has stated, we must be capable of participating successfully in any type of war, in any area in which we may be called upon to engage, ranging from sustained operations with major forces to smaller scale operations in varied terrain. We must continue to stress attainment of the best possible capabilities for waging atomic warfare, while recognizing the requirements to deter and to win wars in which atomic weapons may not be used but which are conducted under continuous threat of their use.

The primary role of the Army, as defined by statute, is: "In General the United States Army, within the Department of the Army, shall include land combat and service forces and such aviation and water transport as may be organic therein. It shall be organized, trained, and equipped primarily for prompt and sustained combat incident to operations on land." Thus, in accordance with the statute, the Army is organized and trained to wage war on land against the land power of a potential enemy. In addition, the Army must provide antiaircraft defenses for both our forces in the field and for those areas in the United States which are vital to our survival.

The strength of a nation is tied to its land. Control of a nation, its people and its resources, requires control of its key land areas. Vehicles of the sea and of the air have vastly extended the range of warfare; but they must operate from bases on land. Thus, strategically located land areas become crucial military assets. If enemy forces should strike, regardless of the manner in which the war was initiated and the scale of that war, only forces on land can prevent the overrunning of those areas vital to the successful prosecution of the war.

Broadly speaking, progress in the science of warfare is measured by improvements in firepower, mobility, and in the communications means available to commanders to permit control and conduct of operations. In this discussion, I should like to present advances being made in these important fields; discuss the application of these new items in offensive and defensive situations; and then discuss the general nature of the organizations required to conduct warfare in the future.

The most significant factor affecting the future Army is the introduction of atomic weapons to the battlefield. These weapons in a wide range of sizes and yields provide massed firepower of unprecedented volume and destructiveness and afford Army commanders the capability to apply firepower when and where needed. This capability, provided to both the offense and defense, is effecting major changes in the concepts of land warfare. The battlefield will be greatly deepened, and dispersal will become the alternative to early destruction. This is not exactly a new phenomenon; the battlefield has expanded throughout the history of warfare in proportion to the range and lethality of firepower means and the speed with which forces could operate.

With the advent of atomic weapons, however, the problem of dispersal cannot be solved by the simple device of extending the interval between men. Organizations, deployments, and tactics are now required which will allow comparatively small, self-contained, combined arms units, possessing great firepower and mobility, to operate semi-independently on a fluid, dispersed battlefield. These units must be capable of exploiting the effects of atomic weapons, and they must be organized and deployed so that the simultaneous loss of one or two of them will not reduce drastically the combat capabilities of the division.

I will return later to a discussion of organization; meanwhile, let us consider firepower.

Firepower for the Missile Age Army

Our firepower today ranges from the 105mm howitzer, through selected conventional artillery weapons, the 280mm gun with its atomic and conventional capabilities, to the Honest John rocket, the Corporal missile, and the Nike I surface-to-air missile. All of these weapons are operational in the hands of troops today. We have made significant strides in two fields: first, in attaining atomic delivery capabilities in both missiles and rockets as well as some conventional artillery; and, second, in integrating missiles

and rockets into our weapons family to replace some of our conventional artillery means.

Weapons systems to be available to us within the next few years are in advanced stages of development. The most significant aspects are the vastly increased firepower and longer range of weapons to be placed in the hands of combat troops, and the increased replacement of conventional artillery systems by missiles and rockets. In our weapons systems for the future we are seeking increased range, greater accuracy, and lighter weight in order to provide a higher degree of battlefield mobility and the best attainable degree of air transportability. Where practicable, our weapons should be capable of delivering either atomic or conventional warheads in order to achieve the utmost in operational flexibility. While we plan to integrate atomic delivery capabilities down to and within our divisions, we intend to retain adequate capabilities for delivering conventional fires. We expect to develop atomic warheads for both missiles and rockets, and for selected conventional artillery to be retained in our weapons family. Our tactical missiles will progressively reduce Army requirements for close combat air support.

We now have two operational field artillery missile systems—Honest John and Corporal. Both missiles can deliver either nuclear or high explosive munitions. Both can be transported by air. The Honest John is a division or corps weapon, with range comparable to heavy artillery. The Corporal is essentially a corps weapon with much greater range.

Honest John and Corporal are the only field artillery missiles currently deployed in the hands of troops, both in the United States and overseas. However, as this slide *[Figure 1]* shows, many new weapons are under development. The Dart is a small, deadly antitank missile which can defeat any armor likely to appear on the battlefield and which also can be effective in an assault role.

The Little John and Lacrosse, which are newer, simpler, lighter weapons with improved accuracy and a higher rate of fire, are being developed to replace or supplement Honest John in the near future. A replacement for Corporal is less immediately imminent.

A new surface-to-surface missile, Redstone, very soon will join active units in support of our troops. In fact, the first Redstone unit has been activated. Redstone has a range much in excess of that of Corporal, further increasing the Army's capabilities to deliver flexible firepower of great lethality at extended ranges. As you may know, Jupiter, or the intermediate range ballistic missile, is being developed jointly by the Army and Navy as a further extension of firepower.

Why the Army needs missile weapons

This is an appropriate time to state why the Army requires weapons with such increased ranges. As the depth of our combat zone increases, so will that of the enemy. Likewise with mobility. The role of artillery remains unchanged: to support the land battle with firepower. In the past, many enemy targets of great interest and importance to the land battle have avoided engagement by remaining beyond the range of our artillery weapons. With the vast increase in range achieved in the development of modern firepower, these critical targets can no longer remain in protected areas, subject only to air attack. Ground commanders need to have at their disposal the means to destroy those targets within enemy territory which can directly affect the ground battle. Modern missiles are valuable items of equipment. In the fluid, dispersed war of the future, they must be emplaced sufficiently far to the rear so as not to be overrun by minor enemy penetrations or infiltration. In addition, they must have sufficient range to provide flexible firepower with minimum requirements for displacement during critical periods of combat and with the capability to provide fire support from rear areas for deep penetrations. And we must have this accurate fire support available under all conditions of weather and visibility.

Let us consider briefly surface-to-air missiles. The Army has a role in the air defense of the Continental United States as well as in theaters of operation. The performance characteristics of enemy weapons systems, missiles as well as aircraft, determine the requirements for antiair missiles. To be of full value, an antiair missile must have the capa-

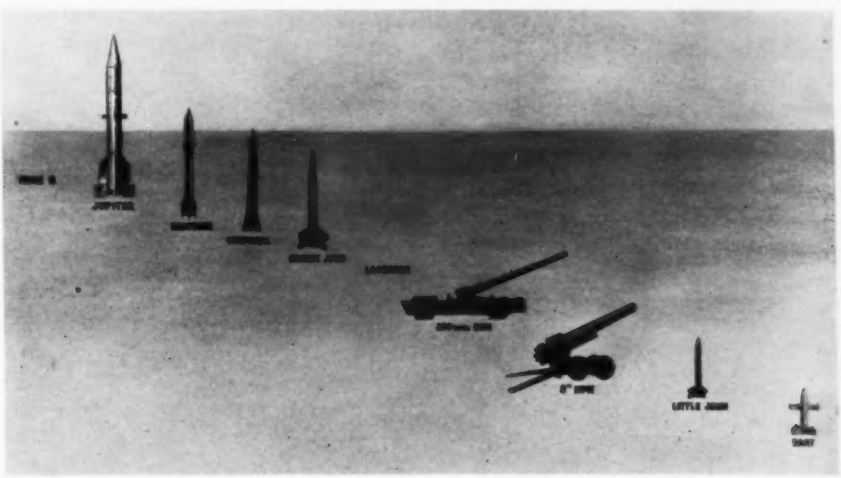


Figure 1. **Army firepower—from Dart to Nike B. Lacrosse and Nike B are not shown.**

bility to effect a kill which prevents the functioning of the hostile warhead. As the speed and altitude of enemy missiles and aircraft increase, the defensive characteristics of our antiair missiles must increase at an even greater rate.

As you know, the Nike I, our first antiair missile, is deployed in defense of critical areas of the United States. This missile was designed to kill jet bombers. It can destroy any aircraft known today. As missiles go, however, the Nike I is only a beginner in the family of antiair missiles.

We are on the threshold of converting our air defense to launch Nike B, an advanced model of the Nike family. This improved missile has greater range, speed, altitude, and lethality than Nike I. The Nike family is a long-range, high-altitude family of antiair weapons. To destroy planes at low altitude, the Army is developing successfully a low-altitude, antiair system which will complement the Nike.

Mobility requirements: ground and air

I will turn now to the factor of mobility. If we are to be prepared to engage in varied forms of warfare anywhere in the world, reduce our vulnerability to enemy action, and exploit the effects of our improved firepower, we must attain vastly improved strategic and tactical mobility.

In the field of strategic mobility, we require the ability to move Army forces by air or fast surface means to any areas in the world in which we may be required to fight. Consequently, our equipment must be lighter in weight, and our units should possess a high degree of mobility and air-transportability. We require strategic air and surface lift from the Air Force and Navy, respectively, which is geared to the requirements and tempo of future wars.

In the field of tactical mobility, we are seeking ground and air mobility means which will enable Army forces to converge rapidly at the focal point of the attack from dispersed formations; exploit the effects of atomic weapons to seize critical objectives or destroy enemy forces; then disperse rapidly to minimize our vulnerability to enemy counteraction. This degree of mobility requires significant advances in two fields: First, lightly armored, air transportable ground vehicles with true cross-country mobility; second, improved aircraft capable of short take-off and landing in unprepared areas of the combat zone. We must provide our commanders with the capability of moving troops, their supplies and equipment, wherever needed within the battle area.

This slide *[Figure 2]* illustrates Army requirements and typical developments in the field of ground mobility. Present day items are shown on the left. Concepts being examined for the future are shown on the right. The items on the top right represent a family of lightly armored carriers now under development. These can carry personnel, equipment and supplies; can be used as weapons platforms, command and reconnaissance vehicles; and can be lifted by medium transport aircraft. These vehicles are amphibious, have cross-country mobility, and provide protection against small arms fire, fragmentation, and some effects of atomic weapons.

The item in the lower center is an artist's concept of a medium tank of the future, and reflects our interest in developing tanks of lighter weight which are air-transportable and which have improved mobility, greater operating range, reduced fuel requirements, and more powerful weapons. For the immediate future we also are developing a new family of improved tanks. While antitank missiles, such as Dart, will supplement tanks in both the antitank and assault gun roles, we do not visualize the elimination of the tank from our organizations in the foreseeable future.

In the lower right is the M56, a lightweight, self-propelled 90mm antitank and assault gun developed primarily to give airborne and airlanded forces a higher degree of antitank protection and assault gun support. It weighs slightly less than 16,000 pounds and has been parachuted successfully from C-119 aircraft.

These items reflect our interest in airborne assault weapons for forces which move by air, as well as our continued interest in the best attainable armored fighting vehicles for sustained ground combat.

Another of our new ground vehicles is the Mechanical Mule which obtained its name from its ruggedness, sure-

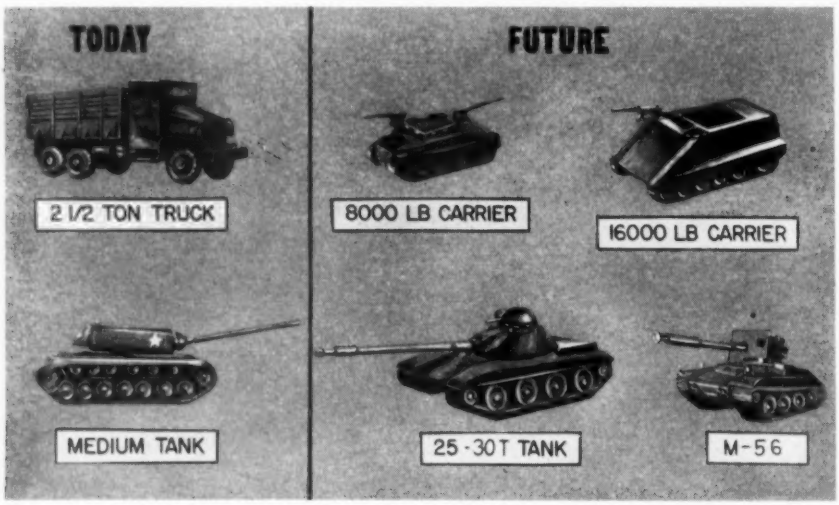


Figure 2. Ground mobility—now and on the way.

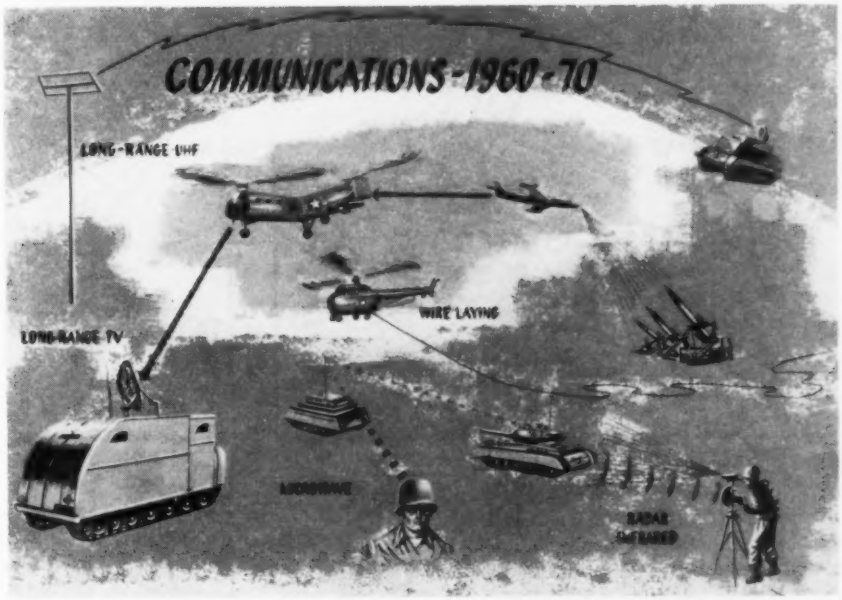


Figure 3. **Communications—now and on the way.**

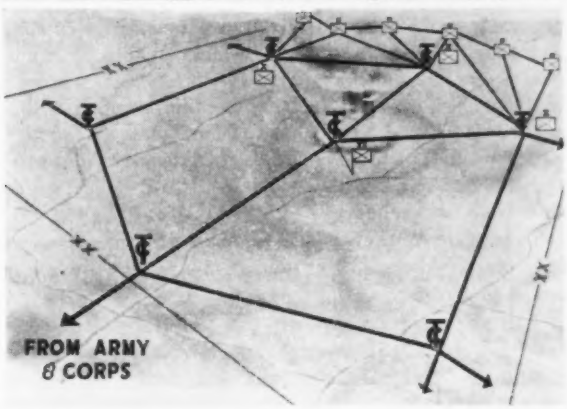


Figure 4. **Typical grid communications system.**

footedness, and load-carrying ability. It is a lightweight, general purpose carrier, with great utility on the battlefield and with multiple applications limited only by the ingenuity of the user.

I will not discuss tactical air mobility or Army Aviation in any detail, as General Howze will cover this subject in a later presentation. However, I should like to emphasize, in passing, the importance we attribute to improved air vehicles in providing the increased mobility we feel is essential in modern warfare. Army aircraft must be capable of vertical or short take-off and landing in selected areas anywhere within the combat zone. Helicopters, convertiplanes, and fixed-wing aircraft all will make great contributions to the success of our Army in target acquisition, observation, command, liaison, communications, evacuation, troop movement, logistic support and other roles.

With the combination of ground and air mobility means we have discussed, we hope to attain true mobility. We feel it is imperative that the Army commander have immediately available the tactical mobility means to move troops, their equipment and supplies wherever required within the combat zone. We will continue to rely upon the Air Force for deep reconnaissance and close combat support, for support in joint airborne operations, and for provision of air logistic support as required.

Faster, lighter, more reliable communications

Now I will turn to the field of communications. The new firepower and mobility means we have discussed, along with the concepts of dispersed, fluid warfare, accent the increased importance of target acquisition and battlefield control and place requirements on communications facilities which far exceed those of the past. We are striving to perfect communications equipment of lighter weight which is durable, dependable, of longer range, and highly resistant to enemy electronic countermeasures. We are making progress in the fields of radar, infrared, acoustics, photography, television, and general electronics. A few typical communications-electronics means of the future are shown on this slide *[Figure 3]*.

In the upper part of the slide an ultra-high frequency

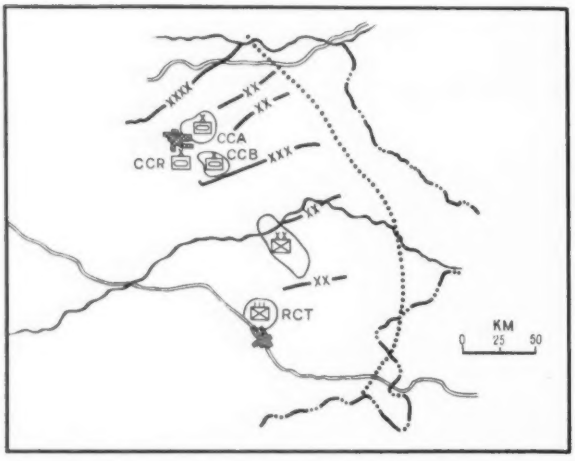


Figure 5. Defense of an area—World War II.

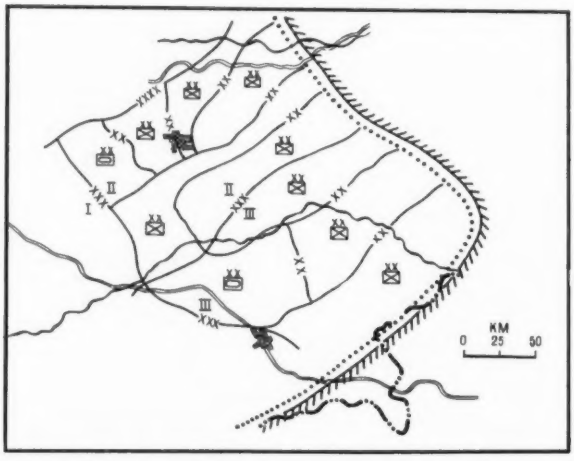


Figure 6. Defense of an area—atomic battlefield.

antenna is sending to a command vehicle. This UHF transmits through the ionosphere and, therefore, reduces to the minimum its vulnerability to enemy jamming. In the center of the slide a drone jet mounting a television camera is picking up enemy guided missile information and relaying it via a helicopter which, in turn, transmits it to a mobile command post. Also shown is a helicopter laying wire, a command vehicle warning a soldier with a helmet radio of the presence of an enemy tank, and another soldier picking up an enemy tank by radar which, in turn, aims his infrared instrument. As you know, helmet radios have been field tested.

To provide continuous and flexible communications, we have developed the area or grid communications system of a type similar to that depicted on this slide *[Figure 4]*.

This system serves not only the division but the corps and field army. It is designated as an area or grid system because the multiple paths of communications appear to form a latticework or grid. The communications centers or sub-centers, certainly the vital elements of the system, are actually self-contained mobile switching centers for radio and wire communications alike. If one is knocked out, traffic can follow a variety of other patterns with negligible loss of time.

Within the army, corps or division area, combat, combat support, service support and administrative units will be tied into the nearest communications center. Emphasis is placed on employment of radio relay circuits because of their inherent advantages over wire. The size and capacity of the centers will vary with the military population and traffic density.

To provide a faster, more complete, and better integrated system for collection, correlation, and dissemination of information of the enemy, we are developing what is termed an integrated battle area surveillance system. We are applying modern technology to the problem of providing commanders with more information, rapidly, in improved form, to enable them to effectively utilize their forces and weapons. Much progress is being made in this field.

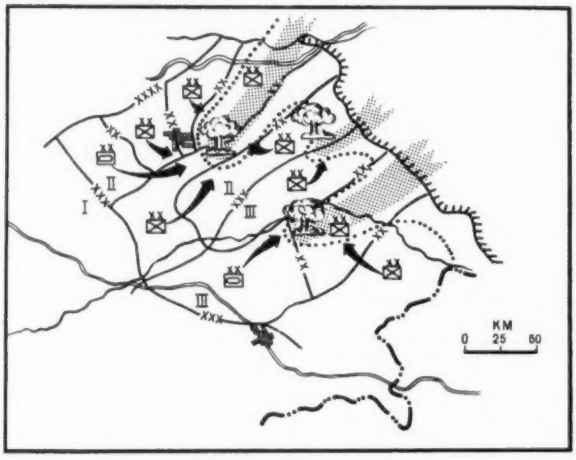


Figure 7. Stopping an enemy penetration.

Time and space factors greatly expanded

Having discussed advances in the fields of firepower, mobility, and communications, I will present briefly how we believe the land battles of tomorrow may be fought. The changes we have mentioned in weapons and equipment are causing major alterations in the methods of employment of ground forces in future warfare. To meet the challenge of new weapons of war, we are being forced to expand our concepts of time and space as applied to land warfare. As I have stated previously, the combat zone in an atomic war will be vastly extended in depth. Combat action will be characterized by fluidity. Units will be dispersed, but through increased mobility will be capable of rapid concentration for concerted effort in terms of time. On the changing battlefield of tomorrow, the decisive margin of strength will fall to the side possessing superior mobility required to exploit the destructive effects of its weapons. Mass, in the old sense of concentrating units and matériel to achieve a breakthrough or to mount an assault, will

be suicidal. Let's consider defensive operations as they might have been conducted in World War II, compared with their conduct in the future. The next series of slides present concepts of the defense *[Figures 5 and 6]:*

Figure 5 illustrates how a particular area actually would be defended based on our World War II organizations fighting a conventional war.

Figure 6 portrays our concepts of how such a defense might be conducted. The area is the same. However, note that the depth of the battlefield has been increased approximately four-fold. Divisions sectors have also been tremendously increased in depth.

The essence of this defense is mobility which will be achieved by organizations consisting of battle groups of all arms, capable of being transported to the zone of action by helicopter, convertiplane, conventional aircraft, or by overland movement in their own organic cross-country transportation. In this defense, an atomic strike would still cause some disruption and damage, but no fracturing of the battle position or loss of control should result.

This slide *[Figure 7]* illustrates how an enemy penetration would be halted. Maximum use of screening forces and ground and air surveillance means will be essential to develop enemy forces, ascertain the direction of his main effort, and direct the employment of our supporting weapons. As the enemy moves forward following his atomic strikes, he is subjected progressively to increasing frontal and flanking attacks by highly mobile battle groups which move out to meet and destroy him. In this type of defense, some penetrations must be accepted. As the enemy's initial momentum is lost, he is attacked by our own atomic weapons and then counterattacked from the flanks and rear by our battle groups and reserves. Flexibility and rolling with the punch, rather than rigidity, will be the keynote of the defense. The use of space will be considered a normal procedure.

In a typical World War II offensive river-crossing operation we would find a heavy concentration of men and matériel within five or six miles of the river bank. Reserves would be in assembly areas within fifteen to twenty miles of the river waiting to cross as bridges become available. The objectives on the other side would be relatively limited in space. We feel that this type of attack would be impossible in an atomic war.

Mass achieved through ground and air mobility

Future attacks will normally be made from column formations and the massing of men and equipment at the decisive time and place will be achieved through ground and air mobility. In support of the attack, artillery, guided missiles and rockets delivered from divergent and far distant points will be employed to achieve an overwhelming fire superiority in the desired area. Units will concentrate only at the focal point of the attack and disperse rapidly on seizure of the objective. The principle of mass must be applied without inviting disaster from enemy atomic strikes.

This slide *[Figure 8]* depicts one method of crossing the same terrain in an era of tactical atomic warfare. Note the wide dispersion of units and the increased depth of the battlefield. The fast, mobile, mechanized battle groups which are to make the crossing are dispersed some 35 to 40 miles to the rear. Minimum activity is permitted in the forward area. On a carefully planned time schedule, the battle groups move out and cross the river in amphibious vehicles. When appropriate, the landing on the far bank coincides with the arrival of air-dropped and air-landed forces which arrive immediately after an atomic preparation. All effort converges on the objective; then, after securing it, the attacking force disperses rapidly to other objectives and thus avoids protracted concentrations which afford profitable atomic targets for the enemy. The same offensive pattern will be suitable for operations conducted

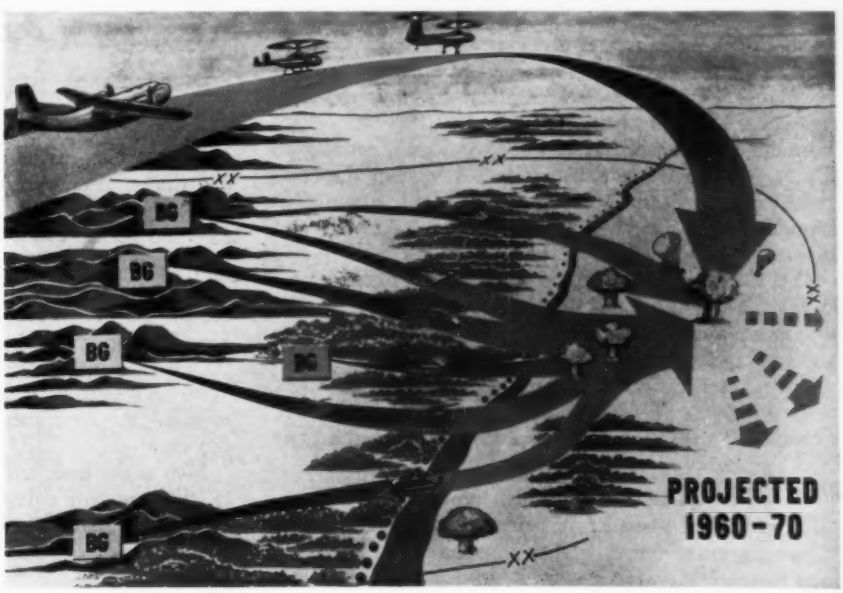


Figure 8. **Future river-crossing operation.**

to any depth behind enemy lines, limited only by the operational radius of organic and supporting aircraft and by our capabilities to provide required combat and logistic support.

The wide open battlefield of sharp, violent clashes

In both the offense and defense, tactics will be designed to achieve a wide open, fluid battlefield. Tactical victory will belong to the side possessing superior mobility, firepower, and control means on a changing battlefield. We can expect increased emphasis on night action to reduce vulnerabilities to enemy detection and fire. The battle will be characterized by violent clashes of short duration. Tactical areas will be held or seized, not as ends in themselves, but as means of controlling the battle or creating favorable opportunities for the employment of improved weapons.

We have looked at the field army area. Now let us examine the theater of operations as a whole.

A typical World War II theater of operations had large concentrations of supplies and installations throughout. These would constitute prime targets for enemy guided missiles and rockets. We do not believe that such an organization could exist under atomic warfare conditions. The pattern of dispersal we have seen in the forward area must be applied throughout the theater. Our logistical support organization must have the same characteristics of dispersal, mobility, and flexibility desired for combat elements. General Magruder and his associates will discuss logistics in some detail at a later time.

Fitting the new concepts into combat organizations

In our discussion of equipment and tactics, we stated that the battle group will be our basic tactical element. This unit will replace in large measure both the infantry regiment and battalion. The 101st Airborne Division at Fort Campbell, Kentucky, was organized under this new pattern. We are continually studying the organization of our infantry and armored divisions and smaller units to better adapt them to atomic warfare and to enable them to integrate and utilize to maximum effectiveness the new equipment becoming available.

In our studies and tests, we have found nothing to change our belief that the division will remain the basic unit of combined arms and services. We will continue to require three types of divisions—infantry, armored and airborne—for the foreseeable future.

The 101st Airborne Division was designed to test a unit specifically organized and equipped for the airborne role, with its equipment all air-transportable in a minimum number of aircraft.

The division contains a command and control battalion, a signal battalion, five battle groups, an engineer battalion, a composite artillery group, and a support command. The most significant aspects of this organization are:

- The pentagonal structure, which provides five subordinate units at each echelon of command.
- The organic atomic capability provided with the Honest John battery.
- The division support command which provides functional logistics within the division.
- Increased means for target acquisition.

The number of aircraft required to lift the assault echelon of this division is approximately the same as for the assault echelon of our other two airborne divisions. However, the new organization and new equipment are expected to provide significantly improved combat power. Units and heavy equipment found in the follow-up echelon of the present division have, for the most part, been deleted from the new organization, based on the concept that the airborne division should be organized with primary consideration to its airborne assault role and with lesser consideration to its employment in sustained ground combat.

We can expect appropriate changes in this and other organizations based on the results of further studies and tests.

The new is soon old, but man remains the heart and soul of armies

In this dynamic age, the new is soon old, whether it be hardware, application of tactical principles, or organizations. Even under the best of circumstances and the highest of priorities, a long period of time elapses between the conception of a military requirement and its fruition in the form of a usable item of equipment. The 280mm gun and its atomic warhead are a case in point. Although the requirement was established in 1945, it was not until May 1953 that the first atomic shell was actually fired at the Nevada Proving Ground. Since that time we have made great strides in integrating atomic weapons and delivery systems into the Army. No longer can we talk about the approaching atomic age. That age is here. Your Army is an atomic army with capabilities which were unheard-of a few short years ago.

In adapting our battle techniques and organizations to the technological means of the future, we must ever bear in mind that man himself remains the heart and soul of military power. The people of this nation are the true measure of our strength.

In the last analysis, there is no substitute for the fighting man. He is our ultimate and indispensable military resource. With his heritage of freedom and enterprise he has drawn deeply upon the institutions and traditions which have made this nation great. He has learned to face and master every obstacle, just as his forefathers did before him.

He can fight in the mountains, in the jungle, in the desert, on the beach. He carries whatever it takes to sustain him. He can walk, run, or crawl. He can swim, sail, or ski. He can't be defeated if he's well led and well equipped. With his ingenuity, perseverance and courage, there is none to equal the American soldier, be he on land, sea or in the air.

Man is the basic and essential element of military power. The modern equipment of tomorrow is meaningless without his ability to master it. Be assured that in molding our Army of the future we will continue to utilize our most valuable asset.

Major General
DONALD P. BOOTH
Assistant Deputy Chief of Staff for Personnel

THE DEVELOPMENT AND TRAINING OF THE SOLDIER'S LEADERS

THE opportunity to appear before a group so keenly interested in the future of the United States Army is most welcome. You appreciate the many complexities in our field of interest far better than the average audience, so you know that there isn't any quick and easy method for reaching our objectives. For this reason, we have selected for discussion only those areas of major importance to any consideration of "Careers in Futurarmy" and will avoid offering you attractive panaceas which have no real long range value.

I will first suggest to you a frame of reference, or definition, for our subject and discuss our broad objectives.

I will be followed by my colleagues who will highlight fields of major interest, certain problems, achievements, and future trends. General Watson will discuss "Career Incentives." He will be followed by General Richardson on "Career Management," General Mather on "Retention of Skilled Personnel in the Army," General Erickson on "The National Guard," and General Lindeman on the "Army Reserve and ROTC."

Emphasis is on long-range aspects of career development

To establish a frame of reference for the overall discussion, I invite your attention to the word "career" in the title of our subject. This is the heart of our objectives. Our emphasis is on the long range aspects of *career* as opposed to the short term *job*. It is vitally necessary that we retain our people in the Army if we are to develop them to their full capability, if the Army is to benefit from this development, and if we are to be able to reduce our costly turnover of personnel.

This emphasis on *career* is the controlling factor or frame of reference for our discussion.

New tactical concepts have been described in the presentation immediately preceding us. You have noted the emphasis on the non-static nature of future warfare, the requirement for fast and correct action and reaction, and the requirement for independent operations by small units.

We will be followed by the Logistics and the Research and Development presentations to describe the new hardware for Futurarmy.

This, then, is an excellent time to discuss the requirements for the *man* in Futurarmy. For even with the most sound and advanced doctrine and the most efficient hardware, we can never achieve our necessary combat capability without the men qualified to execute the doctrine and operate the hardware.

This is the key word—*quality*.

There will always be a requirement for a quantity of manpower, but our emphasis in the future—and *now*—must be on quality.

As complicated as our demands for improved equipment are, the problem is more easily defined than in the field of personnel. For the hardware item we can establish military requirements and determine the specifications necessary to meet these requirements almost by formula with near mathematical accuracy. We are able to field test and measure accurately the quality of our equipment. On the other hand, we have never been able to measure exactly the man. We carefully develop our concepts and our matériel, but too often we assume that the qualified people will be ready whenever we need them. We must remember that we also need to establish some form of military specifications for our men and their leaders. And that we need a lead time in order to develop these people.

It is reasonably easy for the average individual to recognize our increasing demand for specialized personnel in the technical field. There is no problem in explaining to anyone that the man in a guided missile unit needs more technical training than his forefather needed in a smoothbore artillery unit. There has been great emphasis on these added technical requirements which are becoming more and more complex.

The problem of obtaining highly skilled leaders

On the other hand, it is not so easy to describe the requirement for an immeasurably higher degree of skilled leadership than we have ever before imagined. Here is an area which is difficult to define and measure in finite terms.

I suggest that in World War II the requirements for a special brand of soldier and his leader for such units as Commandos and Rangers was readily acceptable to most people. It is not difficult today to explain why we need to select specially qualified people for our Special Forces units.

In actuality, though, Commando, Ranger, and Special Forces type operations won't be much different from the concepts described for small units operating independently on the greatly extended battlefield of the future. These special requirements of yesterday are becoming the day-by-day requirements for men now and completely so in Futurarmy. On the future battlefield, junior commanders will have to be capable of shouldering great responsibility and exercising almost unlimited initiative. We may find the major or the lieutenant colonel of the future required to make decisions comparable to those made by general officers under World War II conditions. The constant contact with, the dependence on, and the guidance from higher headquarters may not be possible.

Consider also the requirement for correct, professional judgment. Moving relatively slowly as we did in World

War II, a small margin of error was permissive. If we failed to take an objective on one day, we usually could break off and try again the next day. The nature of future warfare will reduce greatly this allowable margin of error. Increased speed of movement and destructive effects of weapons can make a mistake in estimate or judgment which might have had no serious effect in past wars, result in catastrophe in future actions.

The psychological impact of atomic blast on soldiers

Add to this another immeasurable. By experiment we have been able to analyze the effects of our nuclear weapons to the point that we can predict damage to material quite accurately. It is obvious that we cannot measure with such accuracy the psychological impact of these weapons on people until after the weapons are actually employed on the field of battle. This is another and perhaps the greatest problem of the leader. Visualize his job in maintaining in the men of his unit the will to fight on a battlefield where these weapons are employed. Imagine, if you will, the thoughts of soldiers in isolated positions in the middle of the night when there is the imminent possibility that all outdoors may become a thousand times more brilliant than high noon without a second's notice. Can these men ever relax? Will they have the physical and mental stamina to fight and to react rapidly and correctly as we demand? The unit leaders, the officers and the noncommissioned officers, are responsible that they do. This isn't an easy task. This cannot be accomplished by anyone less than the highest type individual.

One last point on the requirement for this leader. In the past we have had infantry units, artillery units, armored and other specialized combat units. We know that it is difficult to train a man to the point where he is well qualified to lead any one of these units. The problem will be more difficult in the future because we must train our men to lead and fight relatively small battle groups in which there probably will be integrated all arms, to include infantry, artillery, armor, engineers, signal and others. He must know the capabilities and limitations of each of these elements and of the unit as a whole. And each of the arms will have more complex equipment. Need I expand on the obviously greater demand on the leader?

These are a few of our requirements for leadership.

Solution lies in getting and keeping good men

I go back to my earlier statement that our solution lies in the career—the long-range approach. The words "professionally qualified" and "professional soldier" take on a new and vitally important meaning.

Only by attracting and *retaining* people of quality, dedicated to the Army career, can we *develop* the skills we require. The development will be achieved through training, by giving them as much responsibility in their daily jobs as they can take, and by advancing them as rapidly as they are able to take on greater responsibility. And to make advancement possible, we must rapidly eliminate the unfit and make room for the qualified.

New and more imaginative tactical concepts combined with more complicated equipment and weapons have magnified the personnel requirement tremendously.

Our objective is to create the incentive for an Army *career* amongst people who have the aptitude for development into the *quality* personnel we must have to realize our full combat capability from the new concepts and improved equipment.

Brigadier General
ALBERT WATSON, II
Director, Personnel Plans, ODCSPER

CREATING INCENTIVES FOR ADVANCEMENT

AS a part of the personnel topic "Careers in the Futurarmy" I would like to speak for a few minutes about Career Incentives.

Although we in the Army are constantly aware of the indispensable part played by Department of the Army civilians, time does not permit me to include them here. With respect to career incentives for military personnel I'll cover briefly the problem, progress made by the Congress and by the Army, and a look into the future.

As General Booth has just said, the Army must have manpower of the highest quality. In order to attract and retain such personnel for Army service there must be strong support of such incentives as adequate pay, security, advancement, and housing. The best costs more but it is worth the difference.

What Congress has done to keep good men

Since the cessation of hostilities in Korea, industry has been offering increasing benefits in such fields as health and life insurance, pensions, leave and bonuses. At the same time the Army's traditional benefits continued to diminish in importance. Now let us take a look at what has been done recently toward solving this problem.

THE CONGRESS. In January 1955, the President sent to the Congress a comprehensive legislative program designed to improve existing incentives for a career in the service. So far most of this proposed legislation has been enacted into law.

The *Career Incentive Act* was passed early in 1955. It included increases in basic pay, incentive pay for hazardous duty, and travel per diem. It instituted for the first time a dislocation allowance.

The *Dependent Medical Care Bill,* another item of the President's program, was enacted by the Congress in 1956. It is an important measure that also constituted a significant departure from previous practice.

This new law specifically authorizes medical care for the dependents of active and retired personnel in military facilities whenever they are available; substantially, a continuation of present practice. In addition, however, this law authorizes the use of civilian hospitals and facilities for the wives and children of active-duty servicemen either in this country or abroad.

The *Survivor Benefits Act,* perhaps the most important part of the President's incentive program, also was passed this year. It "provides broader benefits for survivors of military personnel who die in Service or who die later as a result of military service. At the same time, it assures greater protection to servicemen themselves."

Three additional measures passed during 1956 are those for Regular Officer Augmentation, Retirement in Highest Grade Held, and Readjustment Pay for Reservists. Briefly, the *Augmentation Act* authorizes an increase in the total number of Regular Army officers from 30,600 to 49,500. Our main source of officers to fill the Regular Army vacancies authorized by this act consists of Reserve officers on active duty. The act offers a challenge to the Army's Career Reservists, and a lifetime vocation to the best of them.

The bill providing for *Retirement in the Highest Grade Held* extends indefinitely the authority, which would have expired December 31, 1956, for all service personnel to retire in the highest grade satisfactorily held for 6 months —regardless of whether that grade was permanent or temporary.

The *Readjustment Pay for Reservists* bill authorizes a lump sum payment to reserve officers who are involuntarily separated from active duty, in order to assist the readjustment to civilian life.

What the Army has been able to do for itself

In addition to the legislative actions which have been discussed, the Department of the Army has taken certain measures to improve career attractiveness. I would like to mention three of them.

Promotion of Outstanding Officers. The Army's peacetime promotion policy for officers has been based generally on seniority in grade rather than on ability. Although recognized as a sound policy, it provided little opportunity for outstanding officers to advance more rapidly than their contemporaries. This has tended to stifle initiative and to cause officers to leave the service in favor of civilian employment. This policy has been revised to permit consideration of lieutenant colonels, majors, and captains, who have completed a specified number of years in grade, for temporary promotion ahead of the time when they would normally be eligible for consideration by a selection board. The maximum number of promotions to be made under this program will be 15 percent of the total promotions anticipated during the fiscal year to colonel, and 10 percent to lieutenant colonel and major. The first application of this policy occurred with the Selection Board of July 1956. Of the total of 440 selected for promotion to temporary colonel, 60 lieutenant colonels will be promoted earlier than their contemporaries.

Stabilization of military personnel. Frequent permanent change of station movements work a definite hardship on military personnel and their families, and continuous effort is devoted to achieving maximum practical stabilization. Personnel are now stabilized in most types of assignments for tours varying from 12 to 36 months, and in some instances for as long as 48 months. Improvement is being made in increasing the number of months between transfers. For example, between June 1954 and January 1956 the length of time between tours increased about 50 percent for all but those on a two-year tour of duty.

Specialization Programs. The complexity of the modern Army has demanded a greater degree of specialization on the part of certain military personnel than ever before. The Army has now established specialization programs in such fields as Intelligence, Research and Development, Atomic Energy, Logistics, and Information. Aside from the requirement to maintain branch qualification and for attendance at appropriate military schools, officers are now permitted to remain in their chosen field of specialization.

New programs for the career soldier

Although much has been accomplished already in an endeavor to increase career attractiveness, the future holds promise for several additional programs which have been initiated. I will mention only a few.

The present *stagnation of promotion* in the higher enlisted grades was caused by accelerated promotions during World War II and the Korean conflict. We will overcome this problem by (1) upgrading certain critical positions in the Army structure; (2) securing additional money for Fiscal Year 1957 for increased promotions; and (3) providing in the FY 58 budget for increased numbers in the higher grades.

The Defense Advisory Committee (Cordiner Committee) appointed by the Secretary of Defense is reviewing the whole area of *professional and technical compensation.* It is believed that the proposals of the Committee also will assist in removing present inequities and providing substantial additional career incentives.

We are driving to reduce the excessive *administrative burden* carried by combat forces company-level commanders. This reduction includes the elimination of a surprisingly large number of unnecessary reports and certificates.

Housing remains a critical problem

The major problem that faces us in the immediate future —beyond any question—is the lack of *housing* for our married personnel. Four of every ten males in today's Army are married. The figure for officers is eight out of ten; for regular enlisted men four out of ten; and three out of ten for non-regular enlisted men. Most of our senior noncommissioned officers are married and have children. Because of shortage of housing for our garrisons around the world, however, families are sometimes separated for pro-

tracted periods of time. This situation is a source of infinite dissatisfaction and, sometimes, of tragic complications.

We estimate that at the present time we have a world-wide shortage of about 96,000 units of housing for Army personnel. Through the maximum use of the Capehart Housing Bill and funds appropriated by the Congress for on-post housing, we plan during the next three years to provide between 50 to 60 thousand units of that deficit. For housing overseas, we will use the so-called "butter for bricks" program whereby housing is provided through the sale of surplus agricultural commodities.

Only last month the Secretary of Defense gave renewed impetus to the solution of this critical problem. In a memorandum to the three service secretaries he stated in part that:

1. ". . . the requirement of adequate living facilities is a military necessity."

2. "Existing installations will be re-examined, and in cases where it is found that inadequate (living) conditions exist, the necessary projects to comply with this memorandum should be instituted."

During the next Congress, we will ask again for relief for those families who are occupying *substandard government quarters* but who are, nonetheless, required to forfeit their entire rental allowance. As you know, we desire to charge only a *fair* rental for such quarters. Such a law very nearly passed during the last session, but was dropped at the last minute. Prospects are bright for passage by the next Congress.

It has not been possible for me in such a short time to discuss all of the facets of career incentives for Futurarmy. Our objective is to attract and retain high-quality personnel. We have made progress. Our President, the Secretary of Defense, and the Congress are behind us. With hope and confidence we will continue our efforts to improve the United States Army.

Major General
J. L. RICHARDSON
Chief, Career Management Division, AGO

GUIDING THE CAREER OF THE FUTURARMY SOLDIER

THE purpose of my part of this presentation is to cover Career Management as it will pertain to careers in the future Army. Actually, I would much prefer to refer to this as career *guidance*. Our effort in making assignments is to guide each officer into a varied type of duties with the hope that each will be more challenging than the last one. By this means we are endeavoring to ever broaden an officer's experience, increase his responsibilities and improve his professional capabilities. By this means we hope to make the military an attractive career, keep our officers better satisfied and desirous of remaining in the service and yet qualifying them to accept more important assignments in case of war.

With the ever-increasing emphasis on battlefield mobility, the Army recognizes the future need of stronger leaders and better technicians. The one main characteristic that continues to stand above all other requirements is battlefield leadership. The prime objective of Career Management in the future—as in the past—will be to assist in the development of an officer corps qualified to lead units in combat. Every other objective of ours must be in support of this primary aim.

The mission of Career Management Division stems from the above and thus, stated simply, it is to make world-wide assignments of officers in accordance with the Army's mission.

Realistically, of course, the needs of the service will primarily govern assignments in the future. We will continue to make every effort to meet major commanders' desires. We will also make every effort to meet an individual's desires. But the Army's mission will always be the controlling factor. Within this, we hope that individual officers will express their preference as to the type duty they feel they need to further and round out their career.

Plans for reservists on active duty and augmentation of regular corps

There are two important programs presently going on within the Department of the Army designed primarily to strengthen the officer corps in the future. First, the program to place all Army Reserve officers on what is commonly termed "extended active duty." It is planned that by the end of 1957 all Reserve officers will then be either on a long-term category or know when their present category expires and they will be released from active duty. This will allow Reserve officers to plan on a minimum of twenty years of active duty. It is felt this has done a great deal to make a military career more attractive to the reserve officers. The *other* program is the Regular Army Augmentation Program, whereby it is planned to increase—in the next two years—the strength of the Regular Army part of the Officer Corps by approximately 7,000. It is planned further that by yearly increments of newly commissioned officers through 1963 the approved Regular Army officer strength of 39,600 or eighty percent of the strength authorized by the Congress (49,500) will be attained.

Educational levels and schooling programs

One factor that will play an important part in determining whether applicants will be given a Regular Army commission is the amount of education the applicant has. Since the Army is a profession and the responsibilities of officers are ever-increasing, as is the need for technical knowledge, it is felt that a minimum of two years' college

Mr. Charles C. Finucane, Under Secretary of the Army, gets a full tray during the luncheon at Fort Myer

education is a fundamental requirement. Every effort is also being expended to project accurately the strengths within the various year groups that will be taken in as a part of this augmentation program in order to prevent any future humps in the promotion system.

With regard to assignment policies, we see little foreseeable change in the future. Officers can continue to expect to spend about forty percent of their time overseas. As I mentioned earlier, within established policies, we will rotate officers through troop duty, civilian component duty, staff duty, and service schools. Critical specialists may spend more time in their specialty in the future, due to the increasing demand for numbers of critical specialists. Also, as the Army Reserve program expands, more officers can look forward to assignments on civilian component duties. This type duty is an important part of an officer's career as the Reserve and National Guard are a most vital part of the defense effort.

The military and civilian schooling program will continue about as it is now. All newly-commissioned second lieutenants will attend their branch basic course. For those with Regular Army commission, this will continue to be followed by airborne, ranger, or aviation training. All can expect to go through their branch advanced course or branch associate advanced course. We will continue to send at least fifty percent to the Command and General Staff College, about ten percent to the Armed Forces Staff College, and about twenty percent can expect to attend a war college. Future selections of students for attendance at war college level schools will be annually by a board of senior officers.

Opportunities for advanced college study

Civil schooling will continue to be available for those desiring and found qualified to enter the various requirements in these programs. Normally, officers will not be permitted entry into the civil schooling program until completion of the branch advanced course. This progressive step is necessary in an officer's career to ensure that he is thoroughly indoctrinated with his branch mission before he enters another field. Following civilian schooling, an individual can expect a utilization tour and then return to his branch for an assignment. One part of the civilian schooling program which we feel individuals should, in the future, take more advantage of, is the authority for an officer to be placed on temporary duty for six months to attend a civilian college of his choosing in order to secure his final credits for a baccalaureate degree and a college-level education. In addition, other schools that will continue in the future are the Army Language School, The Command Management School, the Advanced Management Courses at Harvard University and the University of Pittsburgh, the atomic special weapons and familiarization courses, and the refresher courses at the various branch schools.

Increased requirements for specialized courses

It is felt that the emphasis in the future Army on battlefield mobility, guided missiles, atomic energy, communications, etc., will place increased emphasis on specialization. The programs, as presently approved, are in the field of atomic energy, research and development, public information, logistics, intelligence, aviation, and civil affairs-military government. These programs will expand as the need arises and other programs may be approved if the needs of the service require.

All personnel entering specialization, except for the Logistics program, are monitored by the Career Management Division. Entry into the specialization program at present is on a volunteer basis. In these programs, specialists are considered for repetitive tours in their specialty, but in all other aspects are considered just the same as other officers. They receive as much consideration on promotions, military schools, etc., as anyone else. The monitorship within the Career Management Division assures this. I also assure you that your branch of the Career Management Division is as vitally interested in you if you are a specialist as if you are a straight branch officer. The importance of atomic weapons and research and development requires this. As mentioned earlier, these specialists can expect to receive assignments back to their branch of one to three years' duration, depending upon the number qualified versus the number required in that particular specialty. There are certain critical specialist areas wherein at present the supply does not meet the demand. One step being

taken to improve this situation in the future is to secure from all Regular officers in the grade of captain and below a transcript of their undergraduate academic records. These transcripts and the individual's military record will then be reviewed to determine which ones will be approached to determine if they are interested in the civil schooling program. Where some now hesitate to volunteer, it is hoped that by this means we will be able to qualify more individuals in each specialty and thus assure sufficient numbers available to meet Army-wide requirements.

In conclusion, the management of careers in the future Army will be aimed at improving quality and to qualify officers for the increased responsibilities and the stronger leadership required by the concept of battlefield mobility and atomic warfare.

Brigadier General
G. R. MATHER
Deputy Director,
Personnel, ODCSPER

KEEPING THE FUTURARMY SOLDIER IN UNIFORM

THE trends in our modern Army have been developed by previous speakers and our evolution from the yesteryear mass principle to the mobile, fast-moving, hard-hitting battle group of tomorrow has been emphasized. You have been briefed on the great advances which we expect in our weaponry, our mobility and our communications. A vital corollary of this new capability to deliver more firepower farther and faster than ever before has been to place a premium on the skilled personnel necessary to operate and maintain these complex weapons and material as well as highly effective combat leaders at every echelon to manage them. In sum, these changes in weapons and concepts for waging warfare have magnified the basic problem of personnel management in the Army—the problem of the retention of talented personnel who have the skill, training and experience necessary for the successful execution of their responsibilities.

My purpose during the next few minutes will be to discuss the problems the Army faces in retaining for reasonable periods of service these qualified personnel—officer, civilian and enlisted.

The majority of our junior officers are serving obligated tours of duty following graduation from ROTC or Officer Candidate School. Most of these individuals had no intention of remaining in the active service at the time of their entry; in fact, less than 20 percent continue in the Active Army after their two-year period of required service. The remaining 80 percent are naturally oriented toward careers in civilian life. While it is true that our present rate of retention of junior officers provides the numbers of individuals that we require in today's Army, it does not satisfy our need in terms of skills or quality. In this connection, this year a higher than normal percentage of our Military Academy and Distinguished Military Graduates have resigned upon completion of their three-year obligation. We don't as yet know that this is indicative of a trend but we have taken action designed to change it; recently established procedures require that a general officer in the chain of command consult personally with young officers who wish to resign and counsel them prior to forwarding their resignations. You may be sure that these resignation rates will remain under close observation.

Turning now to our civilian personnel, the most significant problem centers in the executive, scientific and professional field. Both the scope and the complexity of the Army's mission are such as to require the highest level of ability, both in administration and in research and development. It is essential that sufficient career opportunities and incentives exist in order to enable the Army to attract and retain such qualified civilian personnel.

Although we anticipate some difficulty in recruiting the young scientist and engineer, the heart of the civilian problem appears to involve those employees who have reached the top within their occupations. In our view, opportunities are unduly restricted both in terms of pay and numbers of positions in the higher civilian grades; pay for these positions must be increased to a level which is commensurate with that for comparable responsibility in private enterprise. We recognize the maintenance of a corps of dedicated and able civilians as being essential to the Army's mission and are striving for a proper balance between the recognition now afforded in private enterprise and that offered by the Government.

Lack of depth of experience by junior leaders

Turning now to the problems on the enlisted side, the first point I want to emphasize is the current composition of our enlisted structure. Some 66 percent of our enlisted personnel are Regular Army. In other words, out of a total

Sgt. and Mrs. Davis meet Lt. Gen. E. L. Cummings

of 892,000 enlisted personnel in the Army on 31 August 1956, some 592,000 are Regular and some 300,000 are two-year men. With regard to length of service, it is significant that some 66 percent of our personnel have less than three years total service. This, of course, underlines the fact that our experience level does not have the necessary depth at squad and platoon level because we have a disproportionate gap in the three to nine years of service area. By striving to increase the number of Regular Army enlisted men, we hope to increase the proportion of personnel who have been in the Army three to nine years. This will serve to give more stability to the Army by decreasing the endless parade of people through our units and the troublesome personnel turbulence which seriously affects the Army's operational effectiveness.

Until the beginning of this calendar year, our Regular Army recruiting and re-enlistment programs brought gratifying results. However, since January the results have fallen lower than our expectations. Insofar as our senior enlisted personnel are concerned we have been relatively successful in retaining men beyond their second enlistment but the retention rate of individuals completing their first term of service has been disappointing. The failure of these first-term people to re-enlist creates two major problems. These problems are in the junior leadership and in the technical specialty areas: first, for leaders in small units, we are dependent to a large degree on individuals serving in their first enlistment who don't have the necessary training and professional experience. Second, in the technical areas, we must operate a number of schools at considerable expense in order to meet the recurring shortages of technical specialists. These people comprise the heart of our support echelon and because their skills are also in demand in private enterprise, their reenlistment rate is disappointingly low.

Recruiting and retaining high-grade men

Our problem on the enlisted side boils down to one of inducing the high-quality first-term soldier—whether he is an inductee or a volunteer—to remain in the Army for one additional tour. In this connection, we recognize the vital importance of sound personnel management and are bending every effort to improve our administrative and personnel management policies. These are under continual review and analysis. Our goal is to exhaust every administrative measure which will contribute to our problem's solution. On the other hand, we feel that achievement of the career incentives will go much further in solving this problem.

In closing, I should mention the work of the Cordiner Committee which is specifically directed toward the service-wide problem of retention of skilled personnel. This is the Department of Defense Advisory Committee on Professional and Technical Compensation appointed last spring by Secretary [of Defense Charles E.] Wilson and headed by Mr. Ralph J. Cordiner, President of General Electric. Mr. Cordiner's committee is charged with recommending a dynamic program of legislative and administrative measures designed to attract and retain the combat leadership, scientific, technical and management skills required by the Armed Forces today and in the future. The committee is now in the midst of its deliberations and is considering various proposals submitted by the Army, Navy, Air Force and Marines which we are convinced will go a long way toward helping solve our problem.

Sergeant First Class FLOYD DAVIS
217th FA Missile Bn., Redstone Arsenal, Ala.

A MISSILEMAN SPEAKS FOR THE FUTURARMY SOLDIER

I SHOULD like to take a moment to underline those things which General Mather has already told you about —the very great need for men with the qualities which go to make a highly qualified missileman.

You may ask what it takes to produce this first-class missileman.

First, he is a man of more than average ability. He is a man with more than a brief and passing interest in service to his country and in the uniform of the United States Army.

He is a man who is willing to devote a minimum of nine months at a service school to acquire the fundamental knowledge and skill which will make him basically valuable to this vital program. Then, he is a man who will give another half year, more or less, to the study and training which will make him technically dependable in the missile field.

He is also a man who can resist the attractions offered by private industry, and who is of such caliber that he places service and country above these admittedly more financially appealing offers.

Perhaps this is where I may say something about the quality of the training given its missilemen by the United States Army. It may be sufficient to say that the men who complete Army missile training represent the single most profitable field to the recruiters for private industry. And they are good enough, after this Army training, to be accepted without question by industrial employers, whose high standards are well known.

More to the point, let me say that in my opinion the 217th Field Artillery Missile Battalion is ready today—six months after its activation—to employ the Redstone tactically, if given the necessary equipment. Any man could well be proud to be a member of this organization. I am.

However, I am realistic enough to know that the ability

to provide properly for a family and for the future is also important. It is important to me and it is important to the other men of the 217th. Improved pay scales, much greater opportunity for promotion to the top pay grades —with the door open to warrants for men who qualify— and concurrent movement of both dependents and household furnishings when a man makes a change of station —all these things would go a long way toward providing the material incentives for career service.

Major General
E. C. ERICKSON
Chief, National Guard Bureau

THE NATIONAL GUARD'S ROLE IN THE FUTURARMY

MY subject is careers in the National Guard. It can be said that there are two types of careers in the National Guard—one "part time" and the other "full time."

The term "part time military career" can be applied to those officers and enlisted men who attend the regularly scheduled 48 drills and the annual 15 days of field training, and perform other duties during their spare time.

These men have civilian careers in which they are engaged to earn their living and support themselves and their families. Very often the work they do in civilian life qualifies them in their military occupational specialty.

These part-time military career officers and enlisted men are required to improve their professional knowledge by attending service schools, Army Area schools, unit schools, and by enrolling in Army Extension Courses.

More than 8,700 of these part-time military career members of the National Guard attended resident courses of instruction at service schools during Fiscal Year 1956.

This is the second highest in National Guard history; second only to the year prior to the Korean emergency.

Training and educating the part time Guardsman

For those individuals who cannot avail themselves of the opportunity to attend a service school, the Army offers approximately 1,000 sub-courses for home study through the Army Extension Courses program.

More than 50 percent of the officers in the National Guard are presently enrolled in this program, and approximately 10 percent of the enlisted personnel.

National Guard personnel have been made to realize that the Army's military educational system is the keystone in the development of capable leaders for the National Guard.

Consequently, the Army school system and the Army extension course program are utilized, and attendance at service schools is limited only by funds available and the ability of National Guard personnel to take time off from their regular employment to attend.

New second lieutenants for the National Guard are procured through the three types of training programs presently being conducted.

Selected members of the National Guard may attend the Active Army officer candidate course of 22 weeks' duration.

In addition, each summer an abbreviated officer candidate course is conducted at The Infantry School and at The Artillery and Guided Missile School.

These abbreviated courses which fit in perfectly with the summer vacation time of the colleges are providing the National Guard with outstanding second lieutenants.

During this past summer all but four States sent personnel to these summer courses.

In August 1950, a program was inaugurated to permit State Adjutants General to establish state-conducted officer candidate schools, using a program of instruction prepared by the Army.

Eleven such are now in operation and present plans provide for the establishment of *fifteen more* by the summer of 1957, for a total of 26.

Purpose of the "full time" Guard

The term "full time career" may be applied to those officers and enlisted men who, in addition to attending 48 drills and 15 days of field training, work a minimum of 40 hours each week as Army National Guard technicians.

This Army National Guard technician program includes 17,900 individuals employed in maintenance, supply, administrative and staff activities of the National Guard.

These men, although paid with Federal funds, are employed by the several States and are functioning on a full-time basis in their particular military specialty.

The mobilization readiness in the National Guard depends in a large degree on this force of highly trained full-time employees.

When National Guard units were mobilized for the Korean emergency, the only Regular Army personnel form being used was the Morning Report.

All other forms were National Guard Bureau forms which were forwarded to the State Adjutants General after Army forms had been completed for each man ordered to active duty.

Those of you who had experience with this process know of the tremendous amount of time-consuming work that this required.

During the last three years National Guard Bureau personnel forms have been gradually eliminated, and I am pleased to report that personnel forms now used by the National Guard are the same as those used by the Active Army.

To satisfy the requirements of the State Adjutants Gen-

eral, the Bureau has directed that all personnel forms be maintained in duplicate.

When a National Guard unit is ordered to active duty by the Federal Government, the original set of forms remains with the unit and the duplicate set is forwarded to the State Adjutant General.

This procedure eliminates the extra work on personnel forms which was required during the initial period of mobilization.

Included in the active Army forms now used are DD Form 66 for officers and DA Form 20 for enlisted men, neither of which was used prior to the Korean emergency.

The use of Active Army forms in the National Guard not only eliminates the requirement for changing over from NGB forms upon mobilization, but it also trains administrative personnel in maintaining the forms that they would be required to maintain in the active service.

The strength of the National Guard as of 31 August 1956 was 35,071 officers and warrant officers and 368,300 enlisted men, for a total of 403,371.

We expect to reach a total strength of 425,000 by the end of this fiscal year.

Brigadier General
P. F. LINDEMAN
Chief, Army Reserve and ROTC Affairs

THE ARMY RESERVE & ROTC— A PROGRESS REPORT

I WELCOME this opportunity to tell you a little of the results obtained in the Army Reserve during the past year.

Before going into the results of FY 56 it might be well to tell you the mission of the Army Reserve. This mission is to provide:

(1) Units in accordance with Department of the Army mobilization plans in strength, state of training and equipment, sufficient to be deployed with a minimum of post-mobilization training time.

(2) Trained individual reinforcements, officers and enlisted, in sufficient numbers as dictated by current mobilization plans, for the purpose of replacing initial battlefield casualties, reinforcing active army units, and providing trained reinforcements for reserve component units called to duty after M-Day.

Towards fulfilling this mission we are pleased to tell you that the total strength of the Army Reserve in a pay status as of the end of FY 1956 was 206,000 officers and men. This represents a gain of 43,000 officers and enlisted men. Of the 43,000 gained, 39,000 were enlisted men. This is the finest net gain ever achieved in the Army Reserve and furthermore represents a gain in enlisted strength three times greater than in FY 1955. This constitutes a net gain of 26.3 percent for FY 56. In FY 57 we contemplate making nearly a 50 percent gain in over-all strength.

The results accomplished are directly attributable to the Reserve Forces Act of 1955. As all of you know, this Act allows the Army Reserve to enlist young men between the ages of 17 and 18½ with the obligation to take six months training, and upon completion of this training, it allows them to return to their home community to serve out their remaining obligation in an Army Reserve unit.

Active Army contribution to RFA 55 program

This program is mushrooming and much credit for this acceleration it attributable to the fine training being received by these young men at active Army training centers. In fact, too much cannot be said in praise of the Active Army in the conduct of six months training program. The men who are participating in it, have been trained in it, as well as parents, educators and civic leaders have nothing but praise for the work being done by the Army.

The six months program is a solid program of procurement. It offers much to the young man concerned and his parents. When one considers that it will develop his character, give maturity to his judgment, teach him how to live with his fellow men, give him leadership, spiritual guidance, and release him in fine physical condition with the means of taking care of himself—what more can any parent desire for his son? The merits of the six months training program are of sufficient stature to stand alone in selling itself to the public.

Improvements in facilities and installations

In order to properly train the Army Reserve, it is necessary to have adequate facilities, and in this area, the Army has taken positive steps. There is no secret in the fact that it takes eighteen months to two years from the time that the unit strength criterion is met until construction can be accomplished. In view of this, the Army is pushing for better lease and rental space to fill the void that is created by the long lead time on construction.

In this field for FY 56, a total of 61 construction starts were made, which in itself is a record for any one fiscal year. It also has been noted that action is being taken in the field to carry out instructions on better rental and lease space. Good progress has been made in this area and prospects are bright in bettering the record in FY 57.

When you add up what has taken place in the past Fiscal Year and when the present rate of procurement is considered, the future of the Army Reserve looks brighter than ever. The present strength of the Army Reserve is greater than any time in its history and with the gains that have been shown for the first two months of FY 57, there is every reason to believe that FY 57 will be a banner year for the Army Reserve.

With the above in mind, we hope that all of you will return home with information enough to let it be known that the Army has done a splendid job towards building a strong Army Reserve and we ask that on your return home you spread to the parents of young men who are between the ages of 17 and 18½ of your acquaintance, the benefits of the six months training program.

Lieutenant General
C. B. MAGRUDER
Deputy Chief of Staff for Logistics

LOGISTICS PLANNING— THE LONG VIEW

THREE great developments of the last half century will profoundly affect logistics of the future army. The first of these is the continuous increase in the variety and complexity of our military equipment. The second is the continuous increase in the variety and complexity of our military commitments overseas. The third is the entry into a period of great scientific activity, the most spectacular advance so far being the achievement of an atomic capability by the United States and later by the Russians.

Before I can speak about the logistics of the future army, I must set the stage by describing the war to which I expect the logistics for the future army to be applicable.

In any future war, we must be prepared for atomics to be used. For logistic purposes, I would subdivide wars not between atomic and non-atomic wars, but between general and local wars. In a general war, I expect the Continental United States to be attacked with nuclear weapons. In a local war, I do not expect the United States to be attacked, although atomic weapons may be used locally.

I do not expect a short war. With the damage that can be inflicted by atomics, I cannot imagine any nation starting a war with another that possesses atomics, without having first developed an effective means of defense against the delivery of such weapons. In the days of dueling, there were many duels at twenty paces where either adversary, or even both, might miss. There were very few at two paces, where both could surely kill. The tremendous superiority of the offense over the defense which started with the development of the atomic bomb carried by aircraft, and continues with the atomic warhead carried by guided missiles, must be counterbalanced before a general war that is not suicidal can be fought.

The subdivision between the two types of wars I have mentioned, the general and the local war, must be carried into our logistics plans for reserves and for our production base.

Logistics must plan for both kinds of war

We must be prepared to fulfill the many commitments we have undertaken by being able to act promptly and forcefully in the case of a local war almost anywhere on the globe. For a local war, we may count fully on the industrial production base in the United States. Since a local war is far more probable than a general war and also since everything we provide for local war will also be required for general war, it is our objective to be prepared at all times to meet the supply requirements for another local war 100 percent by a combination of reserves and new production from our production base.

In a general war we must expect a considerable degree of destruction of our production base. We must therefore depend more heavily than heretofore on reserves already in existence before the first attack. This will reduce the degree of our dependence on our production base but since we do not accept a concept of a short war, possible destruction should not prevent some degree of reliance on our production base. The possibility of damage will make it necessary for us to reduce the vulnerability of the production base by dispersion or protective construction.

Problem of rapid obsolescence of major weapons

With respect to reserves, the major effect of this period of rapid scientific advance is the increasing rate of obsolescence of all equipment. Until the last decade, obsolescence of Army weapons was never a major problem because it was so slow. For example, the 105mm howitzer of World War II was only a marginal improvement over the French 75 of 1897. Today on the other hand, for bulk calculations we use fourteen years as the average life of an item of military equipment from first production. As we add to our inventory such items as guided missiles, for which the state of the art is advancing rapidly, our rate of obsolescence will become more rapid.

At the same time, then, that the threat of atomic attack makes it desirable to have heavy stockages of supplies in reserve, a rapid rate of obsolescence makes it expensive to have such stockage in reserve.

Only trained and experienced men can overcome rapid obsolescence

As our equipment becomes more complex we need better people in the military service to develop it, to plan how to utilize it, to operate and to maintain it. It takes time to train these experts. In the case of a track radar repairman for a Nike battalion, it takes two months of basic training to make him a basic soldier, then three months to teach him basic electronics, then five months of training in this complicated track radar equipment which he is to keep in operating condition. This amounts to almost ten months. For our officers, who must have a considerable degree of understanding of many types of complicated equipment, the learning period is much longer. In fact, it never ends.

As our equipment becomes more complex it also becomes obsolete sooner. The only thing that does not seem to obsolesce is the human mind. We need to keep our trained and experienced people. Industry wants them too. The Army cannot compete in the way of salaries. We must compete by at least providing reasonably good living conditions so that a man's conscience won't hurt him every time he comes home and sees that his dedication to the service makes his family live in some remote substandard house or crowded unsanitary trailer camp. You who are not in the service can help us overcome local opposition to the construction of adequate housing on our military posts.

Problems of transportation in a future war

Added to the above problems will be the difficulty of transportation of such supplies as we do have in reserve. There will be destruction of transportation facilities and ports in the Continental United States. At sea the threat of snorkel submarines will make convoying desirable at the same time that the threat of atomic attack on such a concentrated target as a convoy renders convoying dangerous. On arrival at the far shore shipping will have to be dispersed to avoid presenting a worthwhile target. Unloading of these dispersed ships over the beaches is practicable but relatively slow.

Within an overseas theater the destruction by atomics of bottlenecks in the lines of communication will make land transportation difficult. Here we will have to rely heavily on movement by air, not of any great tonnages over long distances which are manifestly impossible to anyone who realizes the tonnages we use in war, but rather movements of supplies by helicopter for short distances within a theater over breaks in the lines of communications and movement by fixed-wing aircraft of critically needed items of small tonnage not normally required in large quantity into a theater from the United States.

What can be seen can certainly be destroyed. What can be located accurately can probably be destroyed unless it is far underground. What can be located approximately can possibly be rendered unusable unless it is in protective construction. As a result, attack of depots with atomics may cost us many of the supplies we have delivered to the theater. I look to the greatly increased use of underground or other protective construction to protect the supplies that we do continue to provide.

With all these difficulties facing us, we cannot plan to deliver to an overseas theater the tremendous tonnages of supplies that we have delivered in previous wars. This should lead to:

(1) Reduction in mechanical equipment authorized to troop units.

(2) Substitution of atomics for heavy tonnages of conventional ammunition.

(3) Reduction in POL requirements by better engines and ultimately by the substitution of atomic powered vehicles.

Ordnance Corps. . . . missiles, rockets and ammunition

(4) Elimination of much of our airfield construction with its requirement for heavy engineer matériel tonnages by use of airplanes that can land in open fields.

(5) Reduction of evacuation of disabled mechanical equipment, discontinuance of production line rebuild and great reduction in the provision of spare parts.

In this discussion I have tried to set the stage for two subjects which deserve further discussion. These will briefly be covered by two of the officers who share the responsibility for logistics of the Army with me. The first will be General Brown who will discuss our program to reduce the supplies furnished to an overseas theater in war.

Major General
F. J. BROWN
Director, Supply Operations, ODCSLOG

SUPPLYING AN OVERSEAS THEATER IN TIME OF WAR

I WISH I could state that we have a solution to the problem of supplying an overseas theater in war. However, I can state that we are well on our way toward a solution. Basically our traditional concept of overseas supply has been a pipeline of great diameter, moving supplies selected months in advance under a great initial pressure at the input end and at a low but constant velocity. Because of the great diameter of the pipe and momentum of the mass, the valves were slow acting and therefore control was exercised by varying the input or the initial pressure. The impetus from the rear forced the offshore end to disgorge regardless of consumption or facilities as the objective was to create a high level of stockage within the theater.

Our new concept is a pipeline of small diameter capable of great and variable velocity operating under a vacuum controlled by consumption. As an item is taken out of the pipe for consumption, one is put in at the input. If items are taken out rapidly, replacements are put in rapidly, and the over-all velocity is rapid. If there is little or no consumption of an item, there is no movement of that item in the whole pipeline. If a large number of consumers are using an item, we put it in the pipeline in slugs and send the slugs to a depot on the far shore to issue to the consumer. If there are only a few consumers, we tag the item to go direct to the consumer. Naturally we have vacuum chambers in the system, which cushion the individual vacuum pulses of consumption and which, by their capacity, maintain a vacuum if the pipe is broken for a period. Further, instead of a "big inch" going East, for example, we are using a direct invasion pipeline to each area of operations. Such a concept requires a sensitive control and communication system—a logistic communication system.

Design of a modern Army supply system

We have such a concept under test now—our Project MASS. We are supplying Seventh Army in Europe with its entire requirement of repair parts directly out of ZI depots. In the test, our only depot in Europe is the Army depot and at present it is mobile, so you can see it is small. We only stock in Europe to meet 85 percent of demand—the high consumption parts. This stockage is only 15 percent of the items and tonnage we used to ship and stock. We have established, through experience in the Korean War and in test stations in the U. S., that 15 percent of the catalogued parts will satisfy 85 percent of all requirements. We replenish these carefully-selected depot stocks by container express shipments on regular ocean shipping. The non-stocked or unusual demand is furnished directly to division level by air shipments. Each echelon only carries a stock to meet 85 percent of its demand.

Many of you are aware of our new Army Field Stock Control System. By means of this, we stock the direct support level of supply by usage. Both items and quantities are automatically adjusted to consumption. A by-product of this is a constant automatic reporting of consumption back to producer level. Also a part of this system is the "one line requisition." Gone is the traditional requisition form, laboriously typed out at company level. Instead, a pre-printed form is furnished for each item of supply. All that the originator does is indicate quantity and authenticate. Only limited editing is necessary, as he receives pre-printed forms for authorized items. This whole system has been absorbed in Project MASS and further mechanized. The machines do all the consolidating of these requisitions and finding the stocks. Since these electronic machines will be integrated with our Army grid communication system, they are no more vulnerable than other Army communications.

Punched cards and electronics become the order clerks

Once a punched card is dropped in a hopper at division level, the machine system takes over to include transmitting by radio to the ZI. From the time the card is dropped in the hopper, we are consistently delivering by air in 10 days and replenishing depot stocks by sea in 20 days. Although still in the development stage, the results have been so gratifying that we are extending it to the USAREUR COMZ. To go back to my original example, we will manifold a new invasion pipeline to COMZ with that now running to Seventh Army and are studying laying one in Korea. Our vacuum chambers will be small general depots, either underground or mobile. The number of vacuum chambers can be tailored to meet anticipated pipeline damage. Reserve levels will be low in each, and variety of stock limited. Our Advance Section has, in fact, been

moved back to the ZI, and the new lines of communication are designed for ease of establishment. An inherent part of the parts system is planned and controlled cannibalization of unserviceables, rather than depot rebuild. In other words, a field army is being made self-sufficient in maintenance. When we have refined the techniques, the electronic supply and communications system will be put into rugged type Army equipment capable of soldier operation.

Extensive exercises in over-the-beach supply

So far I have touched only on the distribution and control systems for overseas supply. Paralleling these projects are the transportation projects. For over four years now we have been developing improved techniques for supply through multiple minor ports and over-the-beach operations on the far shore. In Operation NODEX, conducted every other month, normal Army cargo shipments are unloaded under exercise conditions up and down the coast of France. Through extensive palletization and containerization of cargo and the utilization of improved beach lighters, aerial tramways and rough terrain material handling equipment, discharge times have been reduced to as little as 20 percent of those required using conventional methods and equipment.

We are following very closely the development of roll-on-roll-off and other ships designed for expedited discharge and loading. Thus we are developing independence of large, vulnerable fixed ports. For day-to-day operations of the Army, we are rapidly expanding the use of container express, or CONEX as it is called. These are large weatherproof, pilferproof metal containers which do not require

Chemical Corps . . . CBR protective devices

Transportation Corps . . . one-man aerocycle

the expensive and heavy packaging normal to overseas shipments. There are now 38,000 of these containers in the system and on order.

Overseas supply agency and dispersal of stocks

On the near shore end of our overseas supply, we have created the Terminal Commands which will be moved out of the port areas. For example, the Atlantic Terminal Command controls all Army cargoes and can operate through any major or minor port on the East Coast of the United States. The Overseas Supply Agencies are not only being retained but being integrated as well into our electronic control system. They will remain as a D/A agency with the relocated Terminal Commands. Backing up each of our coastal areas (Atlantic, Gulf and Pacific) will be an underground general depot. These will be covered by the next speaker.

There is a development in the Continental U. S. that will directly affect overseas supply and that is the dispersal program for Army stocks. Using our existing depots, we are regrouping them into general depots or complexes for distribution missions. Again, each complex will be stocked to meet the 85 percent of demand, the high consumption element. Since this stockage corresponds to the stockage overseas, the support of an overseas depot can be switched to any general depot complex in the U. S. in event of disruption of transportation to a particular port or destruction of a particular depot. We are attaining a flexibility in overseas supply that we feel can meet any of the many contingencies we face in logistics. While our operations are dispersed, we are utilizing the latest techniques in electronics, both in black boxes and communications, to give us central control heretofore unattainable.

Again I say, I believe we are well on our way toward a solution to the support of our modern Army overseas even with its ever new and complicated modern equipment.

Brigadier General
K. R. BARNEY
Director, Installations, ODCSLOG

THE TWO SEGMENTS OF ARMY CONSTRUCTION

I WOULD like to divide the construction part of the DCSLOG presentation into two segments: first, construction of plant for support of our military missions; and second, construction of plant for housing our people.

By the first, I mean that construction which the Army does or plans to do now because we have an operational need for the plant now, or because we need it on D-day or so soon thereafter we can't afford to await its construction time. Examples of the type of plant we need now are a shop to maintain equipment we operate now, a training facility, a hospital to meet today's requirement, or a research and development facility. Examples of the type of plant for which we cannot wait until after D-day include safe ammunition outloading facilities, the whole field of passive protection against nuclear attack, and our anti-aircraft protection.

By the second, I mean that plant we must have to keep our people efficient and comfortable and to retain them in the service. This area includes principally adequate family and troop housing (and let us not forget the bachelor officer who is still paying $80 per month for the privilege of living in a World War II 8 x 10 room). It also includes supporting facilities such as post exchanges, theaters, chapels, schools, headquarters and administrative facilities. All of these are important in our program of plant for retaining our people.

I will briefly discuss each of these two main areas.

Plant for support of our military missions

The Army's plant—its real property—at the end of World War II consisted of a huge and widely distributed complex of training stations, hospitals, depots, ports, and manufacturing facilities. These were of every age and size, but quantitatively their great bulk was concentrated in a relatively small number of World War II spawned installations, with their characteristic flimsy construction with which I am sure many of us are all too well acquainted. This plant was and is costly to operate and maintain, uncomfortable to use, and has naturally decreased the value of its own end product.

During the immediate post-World War II years, our funding permitted us to do only breakdown maintenance of what we were using, and practically no new construction at all. In more recent years we have been able to obtain substantial, although from our viewpoint still not sufficient, construction appropriations. As part of this changed atmosphere we embarked in 1954 on a twenty-year program to replace our obsolete facilities. This program is in its fourth year. We have been able to put a price tag on it and know at what rates we should progress to meet our objectives. We have not met that rate by several hundred millions of dollars because of budgetary limitations.

Apart from plant to house our people, which I shall discuss later, the areas in which we find ourselves principally concerned are:

(1) Nike facilities for defense against air attack.

(2) Rocket and guided missile research, development and testing facilities.

(3) Protection of essential facilities from thermonuclear attacks.

Our Nike program, construction-wise, is a major effort. Many of you, no doubt, have passed by one or more of these batteries, perhaps when their missiles were pointed

Signal Corps. . . . microwave radios and a Wac on TV

skyward. I am sure you derived comfort from the knowledge that you were looking at a weapon that was operational now, that had a trained crew on hand, and was ready to open fire. Do not be deceived by the relatively simple structures you see at these batteries. Most of the construction is below the ground surface.

Future additions to this air defense program have reached the point where construction must now be programmed. A major share of our programs in the near future will be allotted to this construction. These air defense batteries require a complex of supporting facilities themselves, including housing, maintenance, ammunition storage, and fire control facilities.

As to rocket and guided missile research, development and testing facilities—no informed American will disagree that this is a field in which we must stay ahead. This vital research in the missile and other areas which the Army must conduct requires complex construction, much of it of highly imaginative design. As these weapons of the future are ready for field use, a challenging construction effort will be required to support them. It needs laboratories, shops, testing stands or whatever it takes to test, ranges or whatever it takes to let the object do whatever it does, and instrumentation to measure whether it did it. All this translates into concrete, steel, and harried construction engineers. Redstone Arsenal, Fort Detrick, and Aberdeen Proving Ground, as well as many other places, already show some of the products of this construction.

Tremendous problems in protective construction

Turning now to what I have mentioned as the vast field of protective construction, the Army uses the term itself to cover any passive construction measure to guard against enemy atomic attack. These measures not only include strengthened construction and going underground, but also dispersion and duplication. For some years we have engaged, to a limited extent, in this field, chiefly by incorporating protective features in new petroleum storage facilities and a very limited number of headquarters and communication facilities. However, the large part of this program is still ahead of us.

Some questions which will readily occur to you might include: How about some of our most critical supplies? Should they be dispersed, put underground, or what? How about some of these manufacturing facilities, particularly those which make complicated electronic devices? Should they be duplicated, go underground, or into a hardened structure, or should we stockpile the end products instead? Even papers may get critical. The most important supply may be of no use to the Department if the record which tells us where it is, and the man who knows how to handle the record, are lost.

War is indeed a complicated business. It requires vast headquarters and skilled people to run it. What happens

if they are lost? Duplication? Dispersion seems impractical. All-out heavy protection, where they can "button-up" and operate entirely on their resources through the period of fallout? And I haven't even mentioned the very desirable project of giving all our people at least some degree of protection. The Army is thinking very hard about this subject of protective construction. I believe you will hear more about our plans as they develop in the future.

Army housing—barracks and family quarters

Let us now address our thoughts to plant for housing our people. The purpose of this plant is primarily to provide our people and their families with decent, healthful, and sanitary living facilities with enough of the comforts and satisfaction of the American way of life to hold these same people in the Army. A soldier should have a proper place to live. Anyone should accept this proposition. And even if one is so heartless as to reject it, the dollar and cent savings to the United States if a man stays in the Army, and someone else does not have to be trained to do his job, are perfectly apparent. Family housing problems are a leading cause, perhaps the number one reason, for non-retention of trained people in the service. We must hold these people in the service, both commissioned officers and enlisted men, and we must provide them with adequate housing as an incentive.

We have made some progress in permanent barracks construction and now have approximately 238,000 soldier spaces of a total requirement of 460,000 in our present program, in existence or under construction. These barracks are austere but comfortable.

We have made less progress in BOQ's and family housing. In the case of the latter, we have a deficit of nearly 100,000 units. By this I mean we have nearly 100,000 families that we cannot accommodate in our own facilities or in suitable housing in nearby communities at a reasonable rent. Our principal current tool for attacking this huge shortage is the so-called Capehart housing provided by amendments to the National Housing Act during the first and second sessions of the 84th Congress. Basically, Capehart housing will be privately built and financed but

Quartermaster Corps . . . bread from field bakery

Medical Corps . . . healthiest soldier in the world

the government will guarantee the bonds. At the completion of construction, the government takes over the housing and operates it like any other public housing. The rental allowances of the occupants will be used to pay off the bonds. We are embracing this housing program very vigorously. It offers the possibility of providing large amounts of housing in a short period of years.

Wherever there is adequate housing in the nearby community we will not build our own housing. But we emphatically reject the proposal that the Army has any obligation to provide purchasers for houses in nearby communities where, for their own reasons, the communities have so managed their building programs that adequate rent housing is not available to our people. I think you can do us a real service if you understand this point. We do not want or plan to go into competition with existing community housing when that housing is within a reasonable distance of our post, when it is available at a reasonable rent, and when it is proper housing. There are selfish interests, some of them in communities which have lived with the Army for many years, which would have you believe otherwise.

This has been a highly abbreviated survey of our Army construction future. It is a dynamic program itself, vital to the needs of a modern Army. Under the technical guidance and execution of the Chief of Engineers, the program is moving. Our goal is to keep it moving faster, and wisely.

The Honorable
FRANK H. HIGGINS
Assistant Secretary of the Army for Logistics

THE ARMY SUPPLY SYSTEM—BIGGEST BUSINESS IN THE WORLD

I AM sure that everyone of you can share with me the high honor it brings to stand before this distinguished gathering and present some of the day-to-day problems we encounter in attempting to keep this Army of ours—and to a very large degree, the Navy and the Air Force—supplied with the matériel they need. The demands necessary to keep our way of life and our national safety secure against any challenge are indeed great.

This morning I would like to turn our attention to what I call the business side of the Army. In Army terminology we choose to call it the Army Supply System. What do we mean by the Army Supply System? We mean supplying *all* the needs of the soldier and, to a great degree, the sailor and the airman. I am sure that all of you are familiar with the fact that the Army buys all the subsistence for the three services. We are now commencing the procurement and distribution of all textiles, as we have been doing for standard vehicles in the past. We have recently been assigned the over-all traffic management mission for the three services. Accordingly, not only food and shelter but transportation management and certain munitions are, to a very large degree, the responsibility of the Army.

We keep before us for twenty-four hours a day the thought that there is no prize for second place. Everything we do, every plan we make, every thought we think, is dedicated to that very end. The Army Supply System means to secure the maximum defense value for the taxpayer's dollar. We watch that as closely as possible in everything we do.

Now this all adds up, my fellow members, to the largest business this world has ever known. I think it is a business, as I have said earlier, not appreciated by the general public, and to a very large degree I believe it is not entirely appreciated by some of the combat personnel. Our present picture is a business whose assets are $20 billion. Twenty billion dollars is comparable to the combined assets of General Motors, U. S. Steel and Bell Telephone. That is the kind of business you ask us to manage when you send your civilian representatives to Washington. When we bring these grand officers that it is my privilege to associate with on this job into General Magruder's organization or one of the Technical Services they are being handed a job to manage a business which would be the combined size of General Motors, U. S. Steel and Bell Telephone all wrapped into one.

This morning, realizing the great opportunity presented by the twenty minutes or so allotted to me, I have selected three areas in the management of this business that I would like to discuss. They are the areas in which we receive our greatest criticism—our greatest criticism from the Congress, from the press, or from any other source. First, I think that not being understood, because these matters couldn't be understood unless you live with them twenty-four hours a day, results in our greatest criticism stemming from the large variations in the value of our inventory over a period of years. This is brought about by a variation in manpower, our customers to this business, and of course the resultant variation in equipment requirements. Next, the lack of turnover of this matériel inventory that we are obliged to keep safe during the peacetime period is a terrific problem. I shall touch on that briefly later. In a contrary manner, the last point is the excessive turnover that we have in personnel which is detrimental to all programs. In my opinion, those are our greatest problem areas.

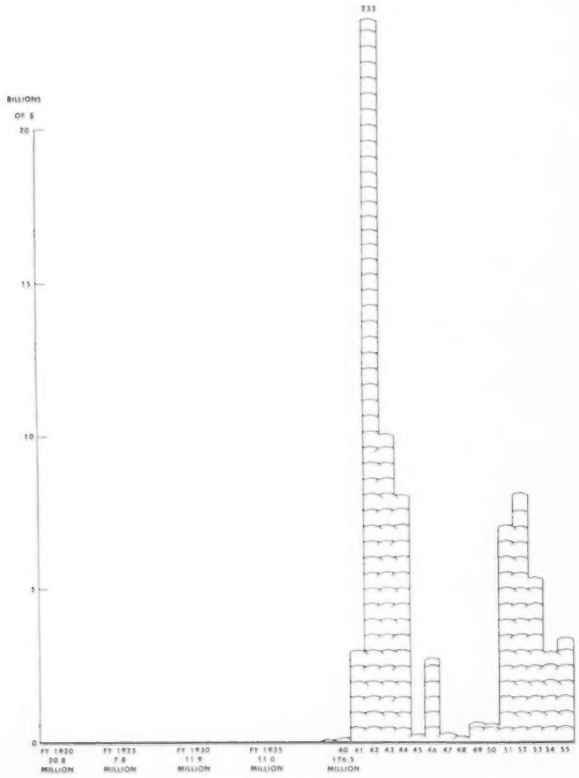
From 200 thousand to 8 million . . . the customer load is unpredictable

Figure 1 shows the customer demand we had through the 1930s. You will notice we had an army of about 200,000 men during this period. Then the war clouds gathered, and in a short period of eighteen months our customer demand went from 200,000 customers to eight million. Well, I submit to you there isn't a business or combination

of businesses in our great national industrial empire which could begin to accept ten per cent of that kind of increase in its customer load. Then note that when the hostilities were over in World War II we had to drop off just as sharply as we increased. When we entered the Korean conflict it was found that we had disposed of too much of our matériel, machine tools and plants. However, we were again called upon to make an overnight expansion of this business in order to fill the requirements of our customers.

Figure 2 shows a similar picture in dollars. These data are limited to ordnance, since it is accountable for about eighty per cent of our procurement and production expenditures. In this case you will note that during the twenties and the thirties we went along with a budget of $20 million. Then World War II descended upon us and we went from $20 million to $23 billion in less than two years. Well, now, I submit to anyone who has had any business experience that you just do not make this kind of increase and do it efficiently. The security of this nation was at stake, and whoever the men were in the position I am in now—whoever the generals were who were assisting—I am sure they did the best possible job in the circumstances. However, I submit that if we had had enough matériel when we started out with a small army and then we increased to $23 billion expenditure in one Technical Service and dropped off at the noted rate, certainly when we got back to some sort of a peacetime plateau we had much, much more matériel scattered all over the world than we had any hopes of ever using.

Figure 2. Ordnance appropriations



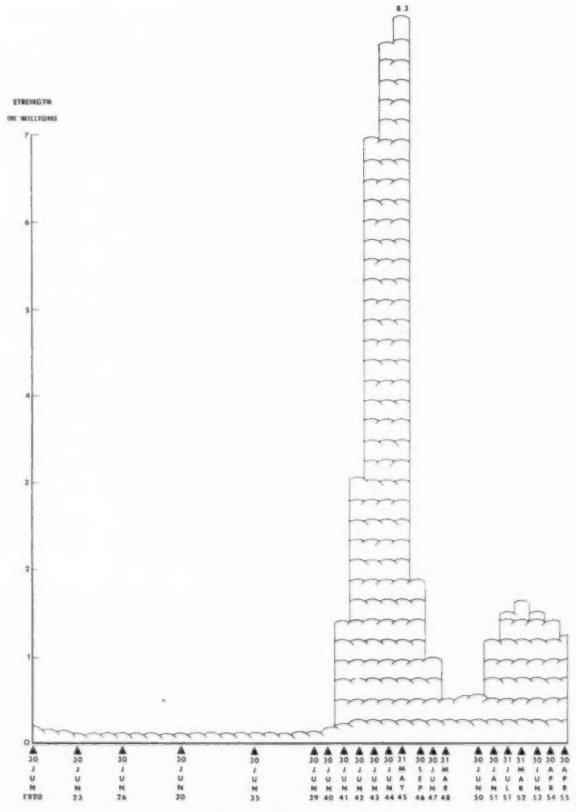


Figure 1. Size of the Army

Now just to keep a sense of comparison with civilian industry, note *Figure* 3. This covers only the period of the Korean emergency. The heavy black line shows U. S. Steel and General Electric, and shows the combined sales of those two companies and the maximum increase that they were able to make during the Korean conflict. That is about the maximum effort you can expect from well-managed, well-financed, well-tooled, well-engineered corporations. They increased their business maybe thirty to thirty-five per cent. While that was going on, let's see what we were obliged to do logistically in the Army. You will note our fiscal obligations went from about $2 billion to nearly $20 billion in the same period. Here again I say this develops much of the criticism that we must endure today. In doing a job of that size as rapidly as it needs to be done, we are bound to get matériel scattered all over the world. It is difficult to decide what to do with it. It is difficult to finance the maintenance of it.

Turnover—slow in hardware, fast in personnel

Let's pass to the turnover problem. First of all, let me discuss the lack of turnover of hardware matériel. As General Magruder has said, we have a fourteen-year cycle on our most complicated item: the tank. To illustrate, if we were to go up to Schenectady and take one M48 tank

coming off the line right now, drive it out into an open field, and let it stand there unattended, in fourteen years it would just have junk value. It would serve no other purpose and would go on the scrap pile purely from the standpoint of obsolescence. Now with the way our engineers and our research people are moving, I think it safe to say that that figure will be reduced from fourteen years to probably half or two-thirds of that time.

In the meantime, these equipment stockpiles that we have accumulated in the system (I'll tell you something a little later of what we have done in the way of reducing that number of items) require maintenance. Matériel just doesn't stay in good shape, however we may store it or wherever we may store it. Mechanical equipment has a way of deteriorating beyond the conception of the average man. In addition, with this factor of obsolescence that General Magruder has brought out, in order to have this mechanical equipment ready for fighting tomorrow requires modification expenditures way beyond any dollars we are able to obtain today. So we have the terrific problem of establishing rebuild-plants all over the world. I have recently come back from a trip to visit logistical activities through the Far East. Through our own and our military aid program the number of vehicles we have in that area is staggering. To keep them running over the kind of roads we find in that part of the world is a very major problem. The cost would be prohibitive to maintain those vehicles at the high standards we all desire.

While we are having a lack of inventory turnover in a peacetime period and the complications that this generates, we have excessive turnover of personnel. This is one of my pet fetishes. My friend, General Magruder, whose door is next to mine, presents no little comfort to me every working day in this regard. I am so grateful to the Army to have General Magruder working at my side on these problems. We are enjoying our tour together to the fullest.

Let's just look at the civilian side of things. On this job —and I will be here, I am very delighted to say, three years come the first of next December—prior to my arrival and just prior to John Slezak, we had a man in this office each year for eight straight years. I maintain—I don't care who you are, I don't care how much you know or what experience you've had—it takes you at least a year to find out something about this job. Fifty-three per cent of the Army's budget goes through this office. Still we have that kind of turnover in the Secretariat. In the period 1946-56 we have had similar turnovers through the other offices of the Secretariat. This presents a serious problem. Along with that, due to our rotation system, we have, in my humble opinion, way too great a turnover in the top military personnel in our logistical area. In the seven Technical Services, in General Magruder's office as Deputy Chief of Staff for Logistics, we have forty-eight general officers, and fewer than half of them are on the job they were on here twenty months ago. So with both the civilian and the military you see the turnover we get in the vice presidents who are running this $20 billion business. It just doesn't add up. We need to find some better way. The heroic things that General Magruder is doing in this area are heartening. As you know, the tour of duty in this area has been lengthened from three years to four. That fourth year is going to mean a great deal. We are breaking down the feeling, I hope, in the minds of you men, that the logistical field of the Army is a rather undesirable kind of tour, that it isn't going to get you anywhere, and you need to get in and out of it pretty rapidly to get promoted. Well, that's out of the picture now. You are going to stand a chance of promotion—note the promotions that are taking place every day in this area—by staying in logistics as well as in any other part of the Army. As we have said many times, all the valor that has been displayed by our fine fighting sons all over the world will be denied them if we send them into combat without the means to get them there, move them about, and supply them with the hardware to do their job.

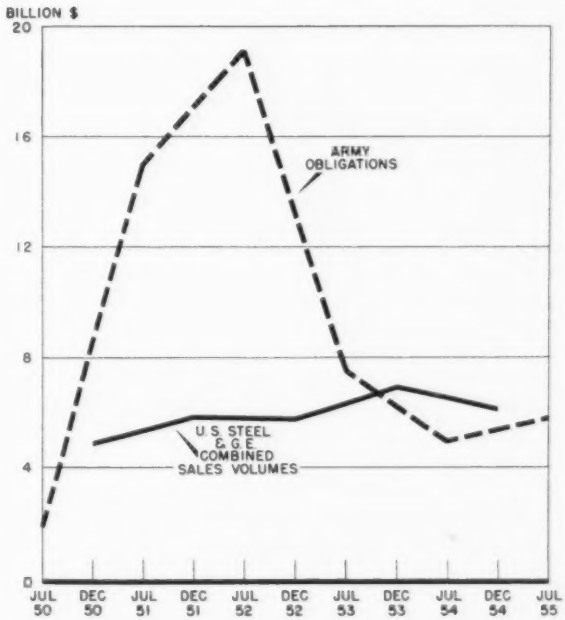


Figure 3. **Far bigger than two "big businesses"**

Now I'd like to note some of the progress we have made in the reduction of the end items in the United States Army. These great officers that we have surrounding us in their planning have long since made the decision that we are never going to be able to drag all the items around the world that we did in World War II. That means we need to have a great reduction in the number of end items in this supply system of ours.

In July 1952 the number of items that we had in the supply system was 1.5 million end items. Today we have reduced those to 900,000 end items, and we have a target established for ourselves of 600,000 items. The difference in inventory value has gone from $35 billion at the end of 1952 to $20 billion; $15 billion have been taken out of this inventory and we have a target set for ourselves of somewhere between $12 billion and $15 billion. At the same time, we will have a better-equipped, better-fighting soldier than we had at the end of World War II.

How is this brought about? Of course, one of the great

items is the sharing of this matériel with our allies around the world, getting them ready to do the job they need to do in their own countries. A great degree of it was done by living off the shelf. A great degree of it has been done by the use of open-end and call-type contracts, where we move matériel direct from the manufacturer to the user, avoiding the warehouse entirely. As General Brown has pointed out, it means better control of the pipeline and of the inventories we have in the pipeline. It means bold decisions for the disposal of our surpluses—disposing of surpluses almost to the tune of $150 million a month for a great number of months. We are getting rid of matériel that we found cost us $15 per ton per annum just to hold it wherever it is. We have cut down wherever we could see no foreseeable need for an item.

I'd like to give you two examples of this standardization system, as we call it. In the case of internal-combustion engines, at the end of World War II we had 138 different bore sizes in the Army Supply System. Instead of 138 we have 19 today. In automotive storage batteries, then we had 212; today we have 28. In electric starting motors, then we had 63; today we have 8. In electronics tubes we had over 5,000; today they are reduced to 192. In fire-fighting equipment, we had 110 items; now we have 49 standard items. We had 2,500 engineered hand tools. Now 800 of these, or 32 per cent of them, have been eliminated. Believe it or not, at the end of World War II, we had 28 different kinds of round-pointed shovels in the system; today we have 2. In the ammunition area, General Magruder and his staff so far have studied 335 basic items. Out of the 335, 90 of these have been dropped.

One delight of automation:
Red tape becomes obsolescent

Another very important phase that my colleagues here have touched upon is the elimination of paperwork, or red tape, in the Army. Just a few weeks ago General [James D.] O'Connell [Chief Signal Officer] asked me to come to Philadelphia to help dedicate a new Army electronic data-processing system. I share with you that you would have to walk into that installation and see this marvel in operation to believe what I am going to tell you. Some of the things we are doing today to get away from the tons of paperwork is fantastic. For instance, here are just a few items. An Army broadcasting tower in France can send us twelve requisitions a minute. These can be fed into an electronic brain that can memorize up to 8 million different items. It can use these facts to process 6,000 orders a day. It can make 30,000 changes a day regardless of where they occur. It remembers all the orders received, and if the stock is not available, it makes a note of when the stock *is* available and issues a shipping order on the particular depot where the stock is delivered and sees that the shipment is made. It reviews daily the stored items and places up to 150 orders a day on manufactures. It reviews all the orders on manufacture, and determines that we still need the matériel, and so on. As I say, you would simply have to stand there and see this particular electronic brain in operation to realize the possibilities of the future that we will have in the way of modern plant. When there is anything new, and it is good, the Army has it and is using it or is planning to use it right down the line.

I've given you a report maybe on a little different side of the Army. While we've talked a lot about dollars and one thing and another, we still have our eye on the main target: that is, we are building equipment, tanks and missiles. Until we are sure that lasting peace is here, we are going to keep our powder dry to insure that whenever or wherever we are challenged, the Army will account for itself in accordance with the high standards of tradition and performance established in the past.

Lieutenant General
JAMES M. GAVIN
Chief, Research & Development

LOOKING BEYOND THE HORIZON TO THE SHAPE OF THINGS TO COME

THE land is man's natural environment and therefore domination of land areas must inevitably remain the ultimate goal of nations at war.

The Army's ability to achieve and maintain such domination has been tremendously increased over the past decade. New aircraft, rockets, missiles, atomic munitions and other new material have been added to the Army arsenal to give it the power and posture demanded by this modern era.

Most of the new items today *organic* to the Army are already familiar to you. Many more new and improved models will soon join their counterparts in the service. Their employment, however, engenders new concepts of warfare not envisioned even ten years ago!

However, what has been accomplished thus far has brought still more distant horizons into sharper focus. Military concepts once identified only as futuristic fantasies have begun to take on meaningful substance and shape.

Time will not permit a complete searching of all those new horizons. But a brief exploration of the possible "shape of things to come" in a few important fields may stimulate your imagination and inspire your enthusiasm for searching them yourselves. *This* is a professional responsibility which each of us here must accept and discharge if our Army is to realize its fullest capabilities in defense of this nation.

The improvement of inanimate objects of war has never been, nor ever will be, a panacea for a secure military posture. In the final analysis, these are but "tools of the trade" and their real value can only be defined in terms

of the skill with which they are employed. It is the innovation of *employment* of new weapons and not the innovation of their *possession* that is the gauge of victory or defeat in war.

Today there will appear before you, the Army's foremost experts in the fields of aircraft, missiles and space vehicles—General Howze, General Medaris and Dr. Von Braun. [Dr. Edward Teller also appeared and his remarks appear here too.—THE EDITORS.]

It is my hope that their presentations will enhance your appreciation of new horizons for research and development that lie before us.

Major General
H. H. HOWZE
Director, Army Aviation, ODCSOPS

THE FUTURE DIRECTION OF ARMY AVIATION

IN earlier discussions you were told why the Army of the future would have to take to the air to achieve the degree of mobility required under widely dispersed conditions which will characterize future combat. The functions of Army aviation in providing aerial mobility might be summarized as follows:

(1) Observation
(2) Rapid movement of troops and equipment
(3) Movement of critical supplies
(4) Air Mobility for ground reconnaissance—the Sky Cavalry concept
(5) Command, control and liaison
(6) Battlefield casualty evacuation

You all are familiar with the fixed and rotary wing aircraft currently available to the Army to fulfill these functions. These are good aircraft and as advanced as possible within the present state-of-the-art. However, they are but the forerunners of better aircraft which must follow. Our future fixed wing aircraft must have shorter take-off and landing capabilities, greater capacities and higher performance; our future rotary wing aircraft must have simpler design, high payloads and lower maintenance cost.

In developing future aircraft we seek to insure four things:

First, true ease of maintenance under battlefield conditions; second, a true short take-off and landing capability for fixed wing aircraft—we need an airplane which can take off and land, over a 50-foot obstacle, within 600 feet (this means a ground run of about 250 feet); third, the capability, in fixed-wing airplanes, of landing or taking off on rough, unprepared fields—even plowed fields; fourth, for all aircraft, an extensive capability to fly in bad weather. We must be able to operate effectively even when one can't see his hand before his face. The development of this capability means the development of both better instruments to put in our aircraft and better navigational and air traffic control systems to be used outside the aircraft.

Progress reported in design of aircraft useful to Army

To develop aircraft designed for the soldier's operational environment and possessed of the performance characteristics required the Army has taken the lead in the past two years in pioneering technical advancements common to its areas of interest. A great deal of time and effort has been spent in general aviation in learning how to fly higher and faster. The Army's endeavor is to get aircraft industry and research organizations interested in how to fly lower and slower.

To this end, following up important work done by the National Advisory Committee for Aeronautics, the Army is participating in the development of four flying test beds to investigate the feasibility of various systems of short or vertical take-off and landing. A test bed is a small prototype vehicle which can be built cheaply, almost on the baling-wire principle, to investigate possibilities which might be applied to larger aircraft.

The test beds which the Army is investigating are as follows:

First, boundary layer control. This is a means of controlling the air flow next to an air foil to obtain greatly increased lift from any given air foil. This also has the effect of lowering the stalling speed of an aircraft and thereby lowering its landing or take-off speed.

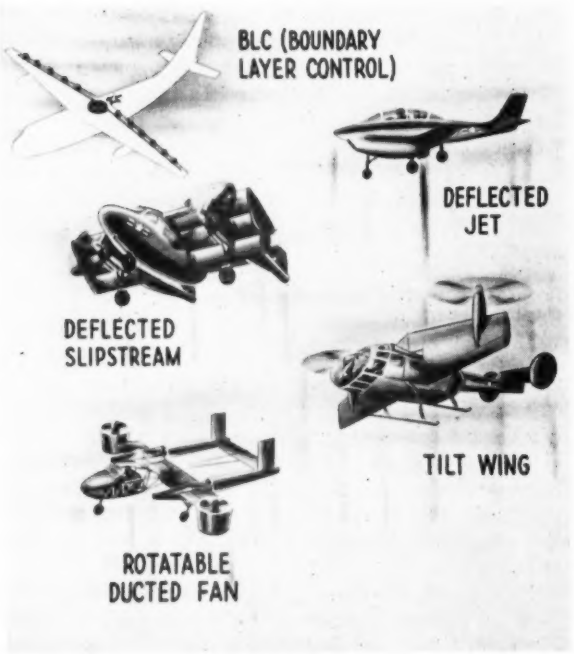
Second, deflected slip stream. The deflected slip stream principle makes use of a very heavily flapped wing which has the effect of deflecting the air flow downward to give very short, or even vertical, take-off and landing possibilities.

Third, rotatable ducted fans. A ducted fan or propeller gives 25 to 30 per cent more efficiency than that obtained from an unducted propeller. In this test bed the ducts are rotated to a vertical configuration for take-off and landing and a horizontal position for fast forward flight.

Fourth, the tilt wing. In this design the whole wing, with the propellers mounted thereon, is rotated vertically for take-off and landing and in a horizontal plane for forward flight. (In another adaptation of these last two principles, propellers alone or rotors are rotated upward for take-off and landing and in a horizontal plane for vertical flight.)

A fifth principle, which is being pursued by the Air Force, is the deflected jet wherein the exhaust from a jet engine is deflected downwards for take-off and landing and then turned into the horizontal plane for high speed, forward flight.

We feel that the application of the best of these principles can give the Army the fixed wing aircraft it requires for high performance, transport and cargo purposes.



Above, Fixed-wing plane capable of 2½-ton payload

Left, Aircraft designs under study by Army

Below, Fixed-wing plane capable of 4-ton payload

The high performance aircraft is needed to perform conventional observation missions and to carry electronic gear for battle area surveillance. It should have a speed of 275 to 300 knots and be able to land and take off over a 50-foot obstacle within 600 feet. An aircraft to meet this requirement is in design competition now and should be available to the Army by 1960.

Requirements in fixed-wing aircraft

In cargo aircraft there is a requirement for a fixed wing plane with about a 2½-ton payload. It should have a cruise speed of about 200 knots and take-off and landing capabilities, again over a 50-foot obstacle, within 500 feet. A heavier requirement in the field of a four-ton transport should have a speed of about 250 knots and like landing and take-off capabilities. Aircraft to meet both these requirements are under consideration at the present time and are possible of development by 1960-61 or earlier.

Further it is possible that we might be able to combine the capabilities of both of these types in one having a *short take-off* capability of four tons and a *vertical take-off* capability of two tons by making use of some of the principles now being tested in our test bed program. In the short 4-ton take-off usage of this plane, it should have a speed of about 200 knots, a troop capacity of 40 men, and take-off and landing capability within 500 feet. In its vertical take-off configuration, the plane would have a lesser load of about two tons and a speed of about 250 knots. Test models of these aircraft could be available in the 1961 to 1962 period.

Let us turn now to the rotary wing aircraft, or, as it is better known, the helicopter. As I indicated earlier, our chief aim here is to get helicopters with simpler design, easier maintenance, and more suited to field needs of the Army. In light helicopters we hope to achieve this by making them smaller, more compact, and simpler. In large helicopters, we are going over to simplified designs and improved power plants; the development of turbo-shaft engines holds great promise in this regard. Let me outline a few significant trends in helicopter development.

First, we are working on a light, simple observation helicopter. We hope to be able to procure a helicopter of this type in sufficient numbers to distribute them on a really large scale to our combat forces. It should be small, simple, and cost about ⅓ of the present models. It will be placed in design competition next year and it should be available for issue to the Army by 1959 or 1960. It is also possible that one of several commercial helicopters under development might enable the Army to meet this requirement earlier.

Next, a replacement for the utility helicopter. There is the Bell H-40 which should fly within the next couple of months. It will have a cruise speed of 100 knots and a payload of about 1,000 pounds. This is the first helicopter

Above, Short take-off and landing and vertical take-off and landing designs

Right above, Medium cargo helicopter

Right, Utility-type helicopter

that has been designed to be powered by turbo-shaft engines. It will be available for issue to the troops in 1959.

Next, we have a requirement for a new medium cargo helicopter. This helicopter should have a payload of three tons, and again will be powered by turbo-shaft engines. Proposals on helicopters of this type are being considered at the present time. We should be able to have them available for issue in 1960 or 1961.

Utility of the flying crane concept

For the heavy cargo lift requirement, we are considering flying cranes. A flying crane is a system of helicopter rotors, engines and control gear which is tied together by a framework to lift the payload instead of having a fuselage. We feel that this is our best approach to the heavy lift requirement for moving tanks over barriers, moving bridging, placing bridges on sites, moving missiles about the battlefield, etc. The flying crane concept is in the hands of industry for study at the present time. We should conduct a design competition for cranes next year and hope to be able to develop one for use by the Army during the period 1962 to 1963. These cranes should have a speed of about 50 knots and payloads of from 8 to 15 tons depending on range.

Finally, we have requirements for what we call "small lift devices." Two of these are being tested at the present time. These are the DeLackner Aerocycle and the Hiller Flying Platform. Both of these should develop a forward speed of about 25 knots and be able to keep one man with his equipment in the air for about an hour. They will be air transportable and will add a great deal to the mobility of the individual on the battlefield. We foresee them being used by patrols, messengers, for reconnaissance, and to perform many of the missions which have always required the movement of an individual freely and quickly in the battle area. Both of these models are in flying tests at the present time and should be turned over to the troops for troop tests within the next calendar year.

Flying crane

Aerial Jeep

Another adaptation of this concept is what we will call the "aerial jeep." This vehicle incorporates two of the rotors which you saw in the Hiller Flying Platform. This vehicle should weigh about 1,000 pounds and have a payload of about 1,000 pounds. It could mount radio equipment, machine guns, and could, we feel, even mount a 106mm rifle. This vehicle, too, will be air transportable. We are going out on design competition for a vehicle of this type this year and we hope to have it ready for troop test by 1959. The future possibilities of this application are so great that I will leave them to your imagination.

Gentlemen, this is the Army's program in research and development of the aircraft to give us the air mobility which the future will require. In conclusion, I would like simply to say that as the future brings more radical concepts, aviation research will stay ahead of them.

Major General
JOHN B. MEDARIS
Commanding General,
Army Ballistic Missiles
Agency,
Redstone Arsenal, Ala.

THE ARMY'S MISSION AND THE ROLE OF MISSIILES

GENERAL GAVIN, honored guests, and friends and members of the Association of the United States Army.

Dealing with a field which many consider to be extremely radical and visionary, I will attempt first to provide a frame of reference for my remarks and conclusions. It will be a frame, I trust, which will stimulate your fruitful imagination while also satisfying the demands of thoughtful consideration.

To provide any basis for remarks and conclusions, particularly in a discussion of matters relatively novel to many, I believe that those testifying should establish their qualifications as "expert witnesses." Therefore my initial undertaking will be to qualify the Army as an expert witness in the missile art by relating background and experience to present and future tasks.

While you are mentally evaluating these qualifications and my statements, bear in mind that this material must be always weighed against the mission of the Army. In brief terms, what the American people expect their Army to accomplish.

Army's mission and the means to accomplish it

It is my unshakable conviction that the American people expect their Army to be able to contain and control any potential enemy on his own ground. Further, to dominate him in his natural environment and thus prevent him from wreaking destruction upon our land. If the emergency occurs, the people expect us to seize and control the aggressor's home plate; in short, to make it impossible for him to work his will upon us. Finally this implies an American Army fully capable of preserving the peace against any challenge from any quarter.

I believe, too, that the Army is expected to fulfill this mission in such manner as to embody the American conscience. So we must avoid as far as possible the use of means and methods which create more problems than they solve. We can do this only by the Army's traditional

policy of selective concentration of the required amount of force at those key places where control can be seized and held. We must avoid unreasoned, unnecessary, or uncontrolled application of destructive power for destruction's sake such as aggressors of recent memory unleashed and thereby aroused the indignation and righteous wrath of civilized peoples everywhere.

If these premises are correct, the means the Army employs must be accurate, controllable and variable in intensity. The right quantity of required resources must be concentrated quickly and certainly. Such concentration calls for a union of related means for reconnaissance, communications, delivery of firepower and the ultimate means of control, manpower.

It is squarely within this reference framework that I will qualify the Army as expert. In doing so, I want to carry your imagination into the future of missiles as a mighty instrument for applying selective control.

The Army's competence in the field of missiles

Let us now proceed with some background to qualify the Army's experience and accomplishments in the missile field.

A major problem in the selective application of controlled force has always been the extension of the power of the soldier through the projection of missiles. For many generations that extension was limited to the use of stored mechanical energy; witness the slingshot, the catapult, the crossbow. With the invention of gunpowder came the era of controlled application of chemically derived energy, rather than mechanical energy, to the projection of missiles as agents of force. The science of ballistics kept pace with the kind of power available for projection. Long range artillery became a major objective since it brought with it the capability of destroying hostile targets with minimum exposure. In World War I a range of 75 miles was achieved with the "Big Bertha," but the explosive power of its shell was too small to bear proper relation to its accuracy. Consequently, "Big Bertha" had little practical value except as a psychological weapon.

Record of Army leadership in control of projectiles

Searching for more efficient means to achieve the accurate projection of force at ever greater distances, inventors turned to rockets centuries ago. However, like the "Big Bertha" principle, they fell by the wayside due to the inability, with the methods known at the time, to contrive sufficient accuracy. With useful control must also go the ability to transport payload of practical size. Despite these shortcomings, some far-seeing individuals who were dubbed "crackbrains" for their trouble, devoted continuing effort to missile work. Notable among them was our own Professor Goddard, who actually applied for patents on many of the basic principles now applied to guided missiles.

Accurate control continued to be a major problem. The Army at the Ordnance Corps Ballistic Research Laboratory in Aberdeen Proving Ground, became a pioneer agent in the world-wide investigation of the characteristics of objects in propelled, free trajectory. Gradually the exploratory work established the nature of many phenomena which affect the accuracy of ballistic projectiles. Meantime, the Army's Picatinny Arsenal, aided by some of the finest chemical enterprises of the country, pushed forward toward the essential control of quality, uniformity, and reproducibility of solid propellants. Control of burning rate was a primary requisite since in free ballistics this was, and is, a means by which to achieve accuracy.

During World War II free rockets began to move into the forefront. The Army's well-known "bazooka" became known as a potent, and accurate, short range weapon. Superior knowledge of ballistics permitted the attainment of more stable free-flight characteristics. The ability to shoot rockets from much lighter equipment met the increasing demands for greater mobility for the Army, and thus gave further impetus to rocket development.

U. S. Army saw the future of the German V-2 missile

It remained for the Germans, in the second World War, to demonstrate publicly and convincingly the advances which had taken place in the parallel field of missiles. They used liquid fuels and oxidizers to provide the chemical energy for rockets. The V-2 missile combined sustained propulsion by liquid-fueled rocket motors with advances in the field of stabilization. The Germans accomplished this by installing on-board sensing devices which automatically applied corrections to missile altitude and thus preserved stable ballistic flight. When the V-2 avalanche fell upon England, informed military men recognized that a new threshold had been crossed in the technology of projecting missiles.

It was the vision of far-sighted Army officers experienced in the missile science field that was responsible for bringing to the United States immediately after the fall of Germany a group of the foremost scientists in this promising field. Dr. Wernher von Braun and his associates, now loyal and devoted American citizens, came here under Army auspices.

They began ten years of cooperative investigation, healthy rivalry, and determined persistence which has produced such historic advances in Army guided missiles as I am about to review briefly. Physics, chemistry, ballistics, thermo-dynamics, electronics, and the advancing field of automation joined to exploit new frontiers of range and accuracy in weapons for the defense of our country. The best capabilities of solid propellants and of liquid fueled rocket motors have been recognized. Each has been applied where its peculiar advantages could be put to greatest use. The visible result has been the parade of modern weapons with which the Army is now equipped. Each in its field is characteristic of the Army's insistence upon accuracy and the availability of measured force at the required place. These accomplishments represent the united efforts of the Army, of research facilities, and of industry.

Honest John brought into the field the capability of a solid propellant, free rocket to carry much larger and more destructive payloads to distances equal to that of the longest range artillery and with lighter and more

mobile equipment. It is a true, ballistic free rocket. It has no on-board guidance. It uses conventional artillery methods to achieve the required range and direction. Honest John is now the most mobile of our weapons capable of delivering atomic firepower.

Recently a junior descendant known as Little John was unveiled. Lighter, smaller, requiring much less and much lighter equipment, it is fully capable of being lifted into position by organic Army aviation. It delivers a long-range punch out of all proportion to its size and weight.

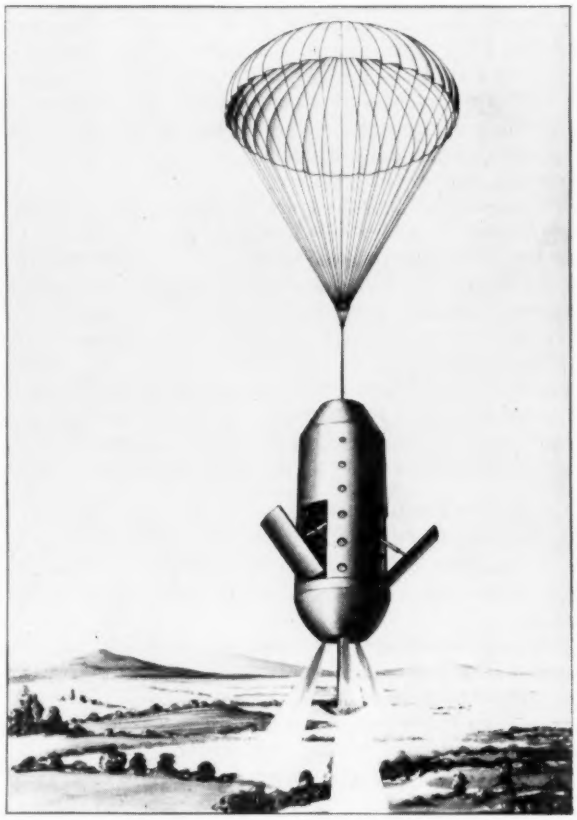
The Nike carried the Army's antiaircraft role into the future. It is an outstanding example of marrying the high-thrust characteristic of solid propellant to the flexibility and sustained power of the liquid rocket motor. Advanced electronics provide the means of control. Nike has been on full-time duty, guarding strategic targets, for several years. It is fully capable of successfully overtaking and attacking any aircraft expected to be available operationally for combat within the immediate future. In its more advanced phases, not yet available for public discussion, the Nike system has demonstrated its basic soundness and its ability to remain ahead of aircraft capabilities. The missile is launched with solid rocket power and sustained and accelerated with liquid rocket engines. There is no foreseeable limit to the potentialities of the basic system in terms of speed, altitude, or range. Like any other maneuverable guided missile, Nike is limited in development only by the ability to acquire and use target information.

Dart is first missile in small-weapons field

The Dart is a new missile only recently announced to the public. It brings the speed, flexibility, and power of guided missiles to the immediate battlefield. It is light, highly portable, and uncannily accurate. It can defeat any known or foreseen enemy land armor to the limit of the observer's optical vision. Dart begins to reveal the capabilities of the guided missile in the small-weapons field that is of major importance in direct contact with enemy forces.

Further exploitation of the flexibility and range of the liquid-fueled rocket engine resulted in the Corporal. It is fully operational and is deployed with United States Army forces overseas. This was the first true ballistic type surface-to-surface guided missile to carry an atomic capability. Corporal was the first of the longer range family of ballistic guided missiles. It extends the all-weather capability of accurately applying selective force. Featuring another characteristic of ballistic guided missiles, the required equipment for Corporal is no heavier nor as bulky as that needed by conventional heavy artillery of far less range and payload capacity.

And now I come to the Redstone, the latest, largest and most powerful of the Army's surface-to-surface ballistic guided missiles. Redstone is completely invulnerable to any external effort to upset or interfere with its highly developed, precise, all-inertial guidance system. It travels at supersonic velocity. It will follow inexorably the preplanned trajectory, carrying one of the largest payloads of any missile. And it will transport this firepower to a

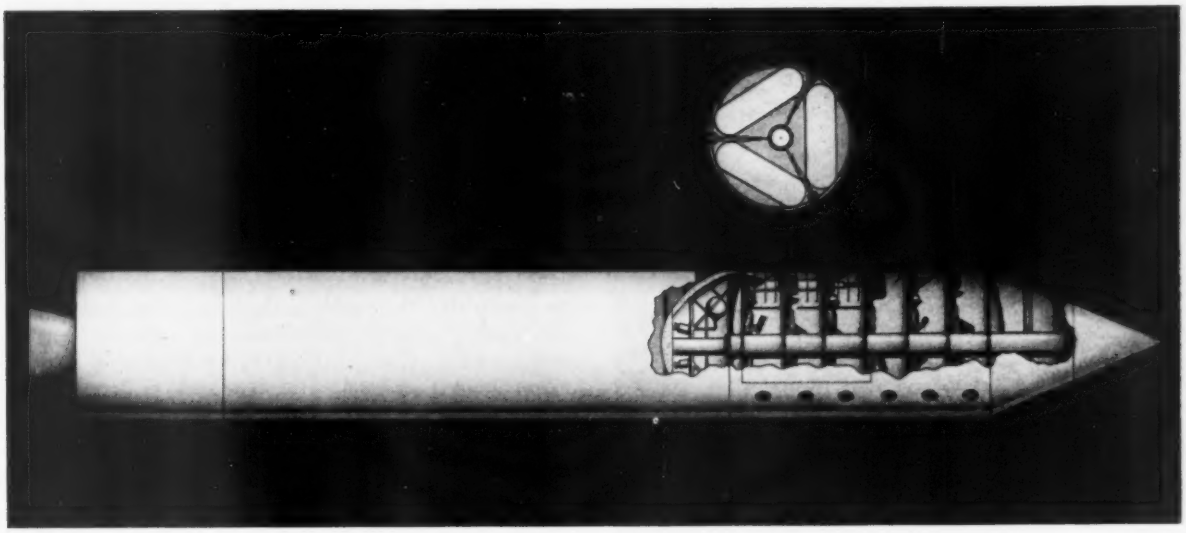


Descent of troop-carrying missile is slowed by combination of parachute and rocket engines

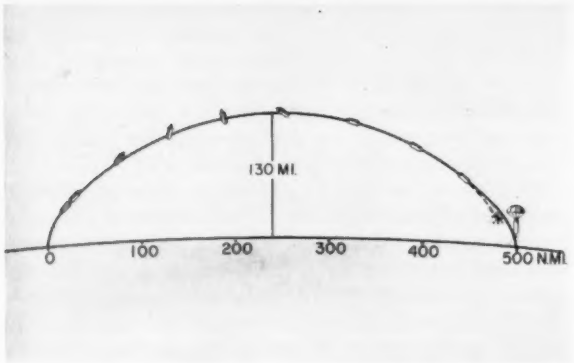
range much greater than any heretofore available. We have subjected Redstone to a long series of successful tests. The first Field Artillery Guided Missile Battalion (Redstone), is now in training. Redstone is to date the longest range United States ballistic missile. The long series of successful shots has demonstrated the unique abilities of Dr. Von Braun's group to exploit the flexibility and load-carrying capacity of liquid-fueled rocket engines on a preplanned basis with assurance of success.

I wish that circumstances might permit me to give you a current report on only a tenth of the achievements that have been brought about through adaptation of the basic Redstone system. For security reasons I cannot. But I can say that we have challenged the Redstone system and Dr. Von Braun's associates with a wide variety of objectives above and beyond those already achieved by the Redstone missile as a single weapon system. Every such challenge has been met in superlative fashion, successfully and on time. Redstone is now fulfilling a basic and important role in the development of the still longer range Jupiter guided missile. It is becoming the work horse of the ballistic missile field. It is a dependable vehicle for almost any kind of test job that our best minds can conceive.

The next demonstration of the competence and ability of the Army team of soldiers, scientists and industry is

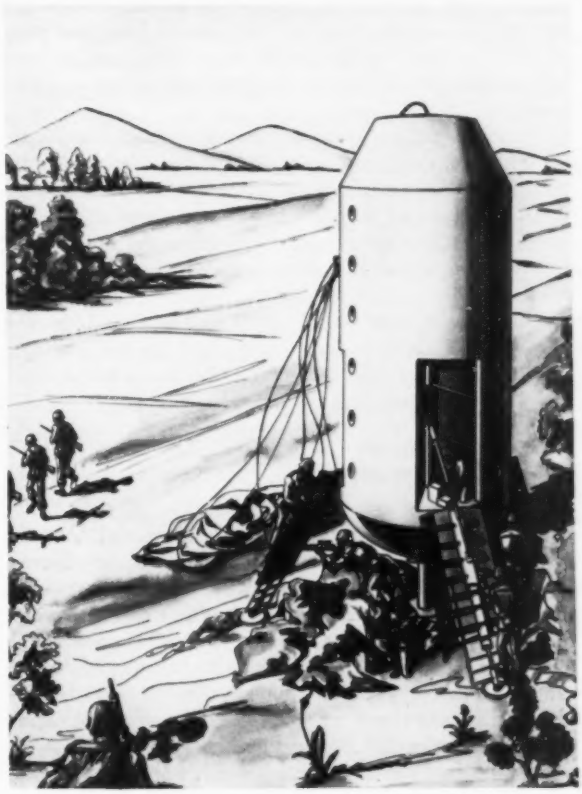


Troop-carrying missile



Trajectory of troop-carrying missile

Disembarking from troop-carrying missile



Jupiter, the powerful mid-range ballistic missile which can be used with either land or sea-based weapons systems. I cannot tell you about it in detail. I can say, however, that Jupiter is definitely and certainly on time, that each milestone fixed a year ago is being met, and that some guide posts are being surpassed. Full achievement of the Jupiter objectives is certain and sure. The means to that end are all within the known state of the art. Forecast progress is based on proven past performance and not upon paper promises and hope.

Army's record on promises and performance is high

Briefly I would invite your attention to some matters of importance to your Army in this missile business. Like the iceberg, the development of weapons and resources for your defense can only be one-eighth in sight. The other seven-eighths must remain invisible. The record of achievements sketched for you may be taken as a clear and positive indication that much more is in hand. But I would remind you that the Army is inherently realistic, perhaps due to its long experience with the hard facts and realities of life. The Army hopes always to produce more than it can promise, rather than promise more than it can achieve. Were I to discuss all the paper projects that have been

Lt. H. Tousley, aide to Gen. Medaris; Thomas F. Morrow, Chrysler Corp.; Maj. Gen. John B. Medaris, CG, Army Ballistics Missile Agency; Dr. Wernher Von Braun, ABMA; and Mr. William H. Martin, Director of Army Research and Development.

under consideration, or are now being considered—even all those known to be feasible—I would be misleading you as to the real state of the true capabilities of your armed forces. I will, nevertheless, make this statement: For the first time in recorded history, the known facts and state of the missile art, and the known scientific capabilities, are far greater than can possibly be exploited by the available resources.

There are neither men, money, nor materials available in sufficient quantities to push forward simultaneously with all the advanced projects we know are feasible. We must, therefore, be highly selective in determining which avenues of advance are most important to the present and future efficiency of the Army. The Army believes that much of that future lies in the known possibilities of guided missiles and rocket power, where the Army has clearly established its competence and its leadership. I ask that you keep these points in mind as we take a brief look into the future only in general terms.

The requirements of future delivery systems

The history of domination and control of the world's land masses is a history of what the military call "delivery systems." Firepower and mobility depend upon effective delivery systems. The concentration and application of measured and intelligent force require that men and weapons be brought together as rapidly as possible on demand, and that firepower be on call where and as needed. Speed, range, accuracy, certainty and flexibility must be the characteristics of the means for concentrating and applying power. Possessing all five requirements affords the Army a deterrent factor that will, we devoutly hope, prevent war.

History records the advance of power, through men on foot, extending their effectiveness in combat with slingshots and catapults, through the bowmen, then the rifleman on horseback, through wagons of materials to motor driven land craft as delivery systems for men, weapons and firepower. Man then turned to the sky, seeking to eliminate obstacles which interfered with earth-bound delivery systems. His objectives remained unchanged—speedy concentration of men and firepower to establish control over greater distances. So the airplane became an interim delivery system. I say interim without derogation. Since the airplane operates within the earth's atmosphere, it bids fair to have the shortest total life as an effective weapons delivery system in war of any that history has witnessed. For employment of the airplane involves such problems as resistance of the atmosphere, relatively long exposure times for the plane and its crew, and fallibility of human reaction under the tremendous stresses of modern warfare. All these point to outer space as the most effective medium through which to employ future delivery systems. Once free of the atmosphere, the ballistic missile is highly efficient, is exposed for very short periods, is relatively invulnerable, is available without regard to weather, and with the accuracies of automatic guidance now clearly foreseeable becomes a superb delivery system for those resources upon which the absolute subjection and control of an enemy in war must depend.

I suggest to you that in addition to the easily demonstrated use of missiles for selective application of measured force in terms of destruction, the time has arrived to consider them as the most advanced, the most efficient delivery system which can be predicted. To deliver what? you may ask. And I say to deliver any and all of the resources needed for the control of man's basic habitat. That includes the acquisition of information, the concentration of manpower and shorter range weapons for local application of control, and the reinforcement of such forces with men, materials, and long-range selective firepower as the situation dictates. None of these possibilities is beyond the range of achievement with presently known means and methods.

IN conclusion I want to re-emphasize these points:

First. The Army has proved its ability to exploit scientific advances to the limit permitted by the resources available to it. The Army attempts to use highly selective judgment in its choice of projects, to accomplish the greatest possible progress with the least practicable expenditure of resources. It religiously keys all of its selectivity to its mission—the concentration at the right time, at the right place and in the right amount of flexible and selective force in order to carry out the will of the American people upon an aggressor.

Second. The Army does not consider missiles and rocket power as ends in themselves, but rather as means to an end. It considers missiles and rocket power as advances and logical developments of the Army's capability to carry out the mission entrusted to it by our people.

Third. Through the use of missiles as accurate delivery systems, fully and directly responsive to the will of the

ground commander, the Army knows that it can provide firepower and selective force immediately at those critical points where concentration will impose effective control. It can protect and support the far-ranging, flexible and mobile forces of the future. The Army believes that missiles as an efficient delivery system without parallel in history can be used as an important element of the mobility essential to future warfare. The Army can thus marshal its resources to insure the security of our nation and to maintain the peace.

Dr.
W. VON BRAUN
Director, Development Operations Division, Army Ballistic Missiles Agency, Redstone Arsenal, Ala.

SECURITY ON EARTH MEANS CONTROL OF OUTER SPACE

THERE is another reason why the domination of land is a vital factor in preserving peace and security. This reason has to do with the growing correlation between man's existence on earth and the reaches of outer space.

The day is fast approaching when, from protected land areas, men will be able to launch stations into space which can obtain and transmit information critical to the conduct of war: concentrations of troops, ships and planes; constructions of new installations and roads; observations of explosions and damages of weapons. Ultimately it will be possible to launch weapons from such stations, with deadly precision, upon hostile installations.

Even today the capability exists for putting an unmanned station in orbit around the globe to demonstrate this feasibility. With existing techniques, that cannot be disclosed, it is possible that within four or five years a station so orbited could obtain a vast amount of information from any area of the globe and transmit to receivers while over friendly territory. However, the manned space station is an inevitable planning goal for those concerned with importance of space and that will involve the science and techniques of space travel.

Launching an orbit in three stages

Let us examine the rudiments of space travel. The decisive step in correlating the control of land and space would be to place an object into an orbit in which it will circle the earth indefinitely. It takes a speed of about 18,000 miles per hour to accomplish this.

A fundamental step in increasing speed is application of the multi-stage principle. In one model of a three-stage rocket a number of engines lift the missile off the ground until it has reached, in about one minute operating time, a maximum speed of 3,600 to 4,000 miles per hour. The first stage is then jettisoned and the rocket motors of the second stage take over. The second stage builds up the velocity to from 6,000 to 8,000 feet per second, added to that attained by the first stage. After this speed of approximately 12,000 feet per second has been reached, the second stage would be dropped. Now the rocket motor which is the last or stop stage takes over. It will forge ahead at an initial speed of about 12,000 miles per hour until the final orbital speed of 18,000 miles per hour has been reached. This is sufficient to keep the missile in orbit.

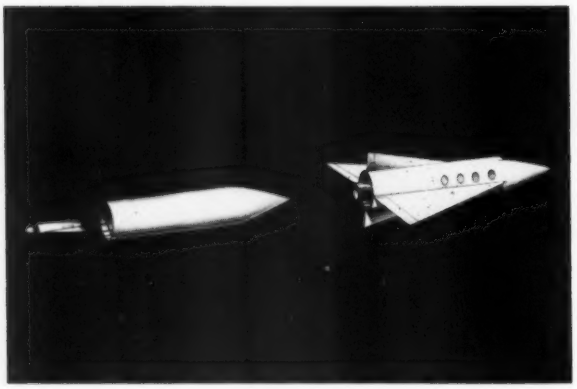
What makes an orbit tick? Suppose you fire a gun from the top of a mountain in horizontal direction. Gravitational pull of the earth pulls the bullet down until, after a certain distance, it strikes the ground. Increasing velocity enables the bullet to travel farther. At a certain speed the curvature caused by gravitation will exactly match the earth's curvature. The bullet would then keep on flying around the earth, unable to reach the surface, until it strikes the breech of the gun which fired it.

You can establish an orbit at various altitudes. In theory you could establish one immediately above the ground. Interference with the atmosphere would throw the bullet down and the orbit would be unstable. So we must go outside the atmosphere. Once outside, we have free choice of altitude. The higher we go, the slower is the velocity required to balance the gravitational pull of the earth. The point is that centrifugal force with the curved orbit balances the gravitational pull of the earth with the object in a stable orbit.

During ascent of a three-stage rocket ship the crew would undergo high acceleration. When the ship takes off, this acceleration is not too high, but it gradually increases as the ship loses weight due to fuel consumption and with the thrust remaining constant. The first peak of the acceleration curve is reached at cut-off of the first stage. It would be about nine g's. After this peak it would drop to about one and one-half g's when the smaller motors of the second stage take over. A second peak occurs at cut-off of the second stage and would be about nine g's. A third peak will be reached at cut-off of the third stage, but acceleration will not be as high because this stage carries the payload and is an earth-returnable upper stage with propellants necessary for return flight.

The effects on men of space flight

The crew manning such a rocket ship must function as a team under harsh conditions. A tool to train the crew is the centrifuge . . . now used to check personnel for blackout limits. Adopting the same principle and making the nacelle larger would make it possible to place the entire crew in the device for team training. We can whirl the passenger nacelle around, exposing its occupants to acceleration. We can also rotate it as it swings around to simulate erratic flight conditions. . . . Inside of this crew compartment the men are being exposed to acceleration



Satellite station crew launches explosive missile from freight-carrying missile which is under its control

of eight or nine g's. They are supposed to take necessary measures after an operator has flashed the situations on their dashboard panel.

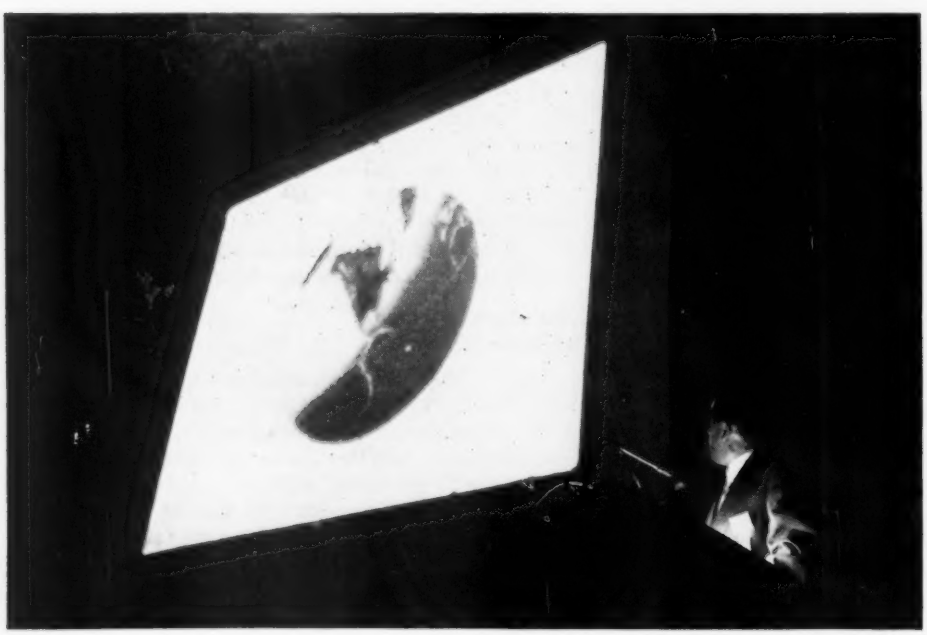
In addition to high acceleration, the crew must contend with weightlessness. It is commonly assumed this condition occurs only after the ship leaves the gravitational pull of the earth. This is untrue. Weightlessness in a rocket ship occurs the moment the engines are cut off and the ship coasts freely and outside the atmosphere to any trajectory or orbit. Weight is actually the cause not only of gravity, but also of the floor on which we stand and which prevents us from following the pull of gravity. It always takes gravity and a rigid support to create the condition of weight. As you withdraw support and permit the body to respond to gravity, that body is weightless. Jumping from a diving board into water, you are weightless for a second or so until you hit the water. Flying in a rocket ship that is not powered, your body is subjected to the same laws of motion as the ship itself. Consequently there can be no differential forces to keep you in the ship. You will float freely within the cabin. It is very difficult to simulate weightless conditions from the ground because any such condition is always terminated by an impact, since it builds up within the gravitational pull of the earth. But there is a possibility of simulation.

* * *

What happens to man in this condition? Man can eat or drink in horizontal position. If you tried, you would discover that you can eat upside down. Physicians do not believe that blood circulation will be adversely affected because the important factor here is the drag resistance of blood in veins and arteries. Gravity plays only a small part. You can lie horizontally in bed, get up, and your heart circulation is hardly affected.

Let us now assume that our missile took off from a Pacific island and climbed into an orbit which inclined at about 65 degrees to the Equator. The ascent is on a northeasterly course. Shortly after leaving the island, about 1,000 miles down range, the last stage reached terminal velocity. Since the ship has excess velocity over and above circular orbital speed at this altitude, it recedes farther away from the earth unpowered and reaches the apogee just 180 degrees on the right upper corner of this globe.

To establish circular orbit at this altitude, 1,075 miles up, we need an extra kick at the apogee [most distant point from the earth]. This prevents the rocket from going down to the perigee [the orbit's nearest point to the earth] at 60 miles altitude. This is a minor maneuver requiring only about 15 seconds of power application. Having given this kick to the third stage, the rocket is now permanently established in an orbit 1,075 miles up. The ship would



Dr. Von Braun describes a slide during his AUSA lecture

go around the earth once every two hours. The earth will rotate inside the orbit once every 24 hours. So the orbit station will pass the Equator at a different meridian each time. An observer would see different parts of the earth on each revolution. Within a 24-hour period he would have opportunity to see every point on earth at least once. You can readily understand why a manned orbital station would have tremendous military significance both from the standpoint of reconnaissance and possibly as a bombing platform.

It is possible to build this manned space station in such an orbit 1,075 miles up. But there must be provision so that its crew can leave the ship. The orbit lies in the vacuum of outer space and it would be necessary to don pressurized apparel. . . . It is possible to walk in such a suit although there is one-half of normal atmosphere pressure inside it. But it is hardly suited to the assembly work necessary in an orbit. We must have something which permits manual dexterity. A possibility is a container that looks more like a Coke bottle. It is a rigid container, pressurized within, which allows the wearer to look out through a glass dome. The operator would be strapped to a kind of couch and could turn himself around. He would manipulate instruments, or artificial arms. These could be retracted. Each would carry a different kind of tool. The system is not unlike that used by amputees. Built-in gyroscopes would permit the occupant to acquire any spatial attitude by using the precession forces of the gyros. Small rocket motors atop and beneath the bottle could be used for transverse motion. Only a few pounds of thrust would be necessary.

I don't know what such an orbital station would look like. Perhaps we should build a number of small ones, or perhaps a lot of equipment should be placed into a large one. This is immaterial.

Orbit of a satellite station around the earth. The inner arc is the trajectory of a guided missile which could be directed by the crew of the satellite directing it. At the speed of missile and satellite, the missile would traverse a distance equal to three-fourths of the earth's circumference. It would be under control of the satellite station crew at all times.

Close by there will be a powerful telescope. From this vantage point unprecedented observation of the planets would be possible. And so would observation of points on the earth, in as much detail as can be seen from a plane at 4,000 or 5,000 feet. Reconnaissance is available for civilian purposes too; for example, iceberg warnings. To the military, it would make possible observation of areas not accessible to aircraft.

Bombing from an orbital station

It is my opinion that bombing could be carried out with unprecedented accuracy. Suppose this is earth [see cut] and this is the orbit in which the space station is traveling in such direction. If you fire a guided missile rearward from the station, imparting to it 400 meters per second or approximately 1,000 feet per second, the total speed of the missile will be 18,000 miles per hour less the little velocity imparted in the opposite direction. The missile will go through an orbit but this one will be elliptical. You can show the velocity here where this perigee point just fringes the upper atmosphere layers.

It is important to note that during this ellipse of descent of the guided missile, space station and missile will be close together. At the point where perigee is reached, the missile will be a little ahead because its period of half revolution (the time required to travel) is shorter than for the space station. It would be at a slight angularity ahead of the launching platform. Now the missile begins a glide through the atmosphere. It is equipped with large fins and will descend deeper and deeper. During this interval the space station will remain overhead so it can track the missile. Since the missile leaves a stage here and the station does not, the station would catch up angularly with the missile again. When the target comes in view, the station will be overhead. During its entire flight you maintain a line of sight from space station to missile. As you approach the target, the target will come into the line of sight. Then you will see both missile and target simultaneously. The missile carries a radar beacon. An optical telescope or radar telescope can be focused on target. With a computer in the space station, comparable to one in an antiaircraft missile, you can make these two lines of sight match at moment of impact. This is the method which cannot be used with intercontinental ballistic missiles. You never have the advantage of seeing the target. Here you have that advantage. So it is even feasible to fire at moving targets. As long as you can see the object and can track your missile by radar beacon, you could hit a moving target even if you do not know the exact location.

General Gavin and Dr. Teller

So far as photographic reconnaissance is concerned, I believe a very high quality of photographs could be obtained through the atmosphere. Even astronomical telescopes must contend with the atmosphere, but in this case the atmosphere is within and in a very short distance from the telescope. So all the turbulence is right in the vicinity or inside the instrument and therefore blurs the image. Taking photographs with a similar optical system outside the atmosphere, from outer space, the disturbances and turbulence are far away. The atmosphere is much more transparent from without than from underneath. Pick up a piece of waxed paper. Hold it close in front of your face and you see only a blur. Hold it on a piece of newsprint, and it is perfectly transparent. You have much the same situation here.

The tricky task of returning to earth

What is the final problem? Returning the personnel from the orbit to earth. The task is more formidable than obtaining the orbital flight. Raising a small, or instrumented object into a satellite orbit is essentially a matter of brute force. To return human beings involves all the knowledge of modern science. We cannot afford to land a space ship from an orbit by slowing it down from orbital speed with propellants. We have to destroy the same energy on the way down that we imparted to lift the station initially. Roughly, therefore, we would need the same amount of propellants to land a ship under rocket power alone as was necessary to bring it up there. This fuel would become the payload for the ascent and would require a much larger ship.

If we depend on aerodynamic deceleration to get down, we can put the atmosphere to work. But this means reentering the atmosphere at a speed comparable to the orbital speed of 18,000 miles per hour and gradually slowing down the ship. This creates a formidable aerodynamic problem. That problem is being fully explored and will be solved in connection with current work of the Army. With means perfected to protect against these excessive temperatures, many means can be used to direct the return to a desired point.

I have endeavored to point out to you means which are within presently known scientific frontiers for controlling space immediately around the earth. Direct application of natural laws to a satellite station would make possible all-encompassing coverage of the earth's station. How-

ever, it is at once apparent that controlled land masses must be available to those who would employ this new medium of reconnaissance, communication and firepower.

In my introduction I cited the growing correlation between man's existence on earth and the reaches of outer space, as a factor accentuating the importance of land domination in preserving peace and security. This correlation becomes more intimate with each passing day as man meets and overcomes the challenges of space. Those who would protect their nations and their birthrights must accept and understand this correlation and resolve the problems it presents if they are to achieve their purpose.

Dr.
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KEY TO MILITARY POWER: EXTREME MOBILITY AND DISPERSION

IT is a fact known to all of us that modern scientific weapons have had a profound effect on warfare. There is not one among us who did not have nightmares about the future conflict in which the full fury of nuclear bombs might be loosed.

The thinking of many has been paralyzed by this prospect. We have been led to distinguish in a way which to me seems arbitrary between conventional warfare and nuclear war. Many have jumped to the conclusion that nuclear bombs as such are weapons of terror and cannot be used except to create wholesale destruction. If one wants to prepare for the possibility of a war in a realistic manner, if by strength and the applications of our best abilities we want to be able to avoid the necessity of a future war, we have to look into the use of nuclear weapons in a more imaginative manner. I am convinced that nuclear bombs can be used for defense in the strictest sense of the word. They can be used in a way which will do minimal damage to the civilian population, and which will be concentrated on the armed forces of an opponent.

First, consider the fact that we have entered the age of atomic plenty. Our Government has earmarked 20 tons of fissionable material for peaceful use in friendly countries. Within our own country such material is available for a little more than $10,000 per pound for industrial uses. Actually a given explosive power obtained from nuclear sources is incomparably cheaper than the same power derived from TNT. It is impossible to maintain that the basic fissionable materials are scarce or too expensive. This does not mean that fissionable material can be made available immediately and indiscriminately for any potential military use. It does mean, however, that fissionable material has become our cheapest effective weapon and that it can be made available in any needed quantity for legitimate purposes if use of this material is planned in a reasonable manner. The last war was fought by the Army on a massive scale. The concentration of men and of materials surpassed anything seen in the past, and, I should predict, also anything that will be seen in the future. The existence of nuclear bombs, and in particular the hydrogen bomb, will make the concentration of hundreds of thousands of people into a single attack a futile and obsolete procedure.

There are those who believe that in the atomic age the only effective service will be the Air Force. In a large measure this idea is due to the timely and effective inclusion of nuclear bombs into Air Force planning. With proper planning, the other services can make similarly good use of nuclear explosives.

The existence of powerful and easily transported weapons makes the use of massed material and manpower impractical. At the same time it provides the means for a warfare of extreme mobility. Such warfare would involve small, self-sufficient fighting units capable of rapid independent or collective action over large areas and would be a far cry from the regular front-line operations of past wars. I believe that this warfare of extreme mobility and dispersion will turn out to be the key to real military power.

Let me try to give you a brief picture of the possibility and requirements of such warfare. You realize that I am no military expert, and that I am speaking strictly for myself. At the same time, I have not met many people who are real experts in predicting the future. So I hope you will put up with the efforts of an amateur.

I have in mind an Army in which the basic fighting units will be battle groups of a few hundred men each. Each battle group would be completely self-contained. No effort shall be spared to equip it plentifully with the best we have in rapid transportation, in media on the ground, over water, and in the air; no effort shall be spared to provide it with the best means of communication. Finally, each battle group would be equipped with the most powerful and easily transported weapons. It should have perhaps a few dozen nuclear weapons with assorted delivery systems and arrangements made to provide additional munitions as required.

I will not presume to suggest the number of such battle groups required, nor to recommend the organizational structures suited to their higher integrations. Suffice it to say the Army must be so constituted that it can defend continental areas, should our nation ever be forced to great conflict. It also should be capable of engaging in limited but drastic actions within confined local areas. Considering all requirements for defense, including the vital requirements for defense against air attack, I envision that the overall requirements for atomic warheads of the small, precise delivery type would be many times greater than that commonly accepted.

The battle groups of such an Army could be made to appear at almost any place in the world within a time not exceeding two days. They could fight for the control of vital positions wherever necessary. They could be at the service of our allies in the time of need without being quartered on their territory in time of peace. They could powerfully help to liberate oppressed people without bombing them to bits. They could draw on supplies from the country which they help, and organize and lead fighting groups to maintain their own freedom and independence. In sum, an Army composed of such units would be more like the knife of a surgeon and less like the axe of an executioner.

But the heart of the matter is this question: What kind of a soldier do we need to fulfill this mission? I believe that this is the most difficult problem. We shall more easily obtain the equipment than the kind of people needed to use it. Indeed, the soldier in this new kind of warfare would have to accomplish almost superhuman deeds. In addition to the courage, endurance, self-reliance and discipline which our men had to possess at all times, he would need some additional and exceptional gifts. He must be thoroughly skilled to obtain maximum effectiveness from his highly efficient weapons, and have among his ranks the trained technicians who can keep in repair a great variety of intricate equipment in the field. Some of these soldiers will have to have knowledge of the languages, customs, even the history of those territories in which they will be sent to fight. Such a force we can have only if we are willing to think ahead for many years and if we are prepared to train an Army composed of professionals with the highest standards.

But the outstanding characteristic of such an army would be the extreme independence and self-reliance that would be required of each of its members. Only a free country in which the greatest emphasis is placed upon the initiative, in which individualism is encouraged, in which order is due to understanding rather than to regimentation, can create and maintain an army of such quality. It seems to me that if we organize such an army, we will have properly utilized the real advantage of a democracy over a totalitarian state.

If such an army is created, our country can face the danger of small war, or even the crisis of a great conflict. And if we are so prepared, I trust that the crisis will never occur.

GENERAL GAVIN SUMS IT UP: NEW EXPLORATIONS IN ARMY RESEARCH

IN closing this presentation, I would like to cite very briefly for you a few more aspects of Army research and development to accentuate its diversity and importance.

It is self evident that requirements for wheeled and track surface transport for our fighting men will mount with the requirements of dispersed operations. Therefore, the Army must consider the long-range problem of availability of hydrocarbon fuels to meet expanding demands of the civil and military community. A host of forms of energy release, through chemical action, are being studied but a recent advance in the study of "free radicals" is worthy of mention here. Certain molecular structures, when split, produce highly reactive chemical species which, upon recombination, release great energy—much greater energy than that released in burning ordinary compounds—these are known as "free radicals." You may have read of recent experiments whereby free radicals of atomic hydrogen were produced by electrical discharge and then stabilized at extremely low temperatures. The recombining of these radicals into a normal hydrogen molecule when the temperature is raised, is accompanied by a vast energy release. Research can determine the feasibility of adapting this phenomenon to fuels, propellant or other high energy use.

The day will come when the missile form itself can serve men as a means of transport. We must be prepared to provide the high energy fuels required for its propulsion; this will be a key requirement for that new mode of travel.

And what about that singularly important instrument of war whose essentiality surpasses that of any weapon, machine or item of equipment—that indispensable combat soldier! His welfare on and off the battlefield must be our paramount concern!

The Army has accelerated its program for sterilizing and preserving foods by heatless exposure to ionizing radiation in order to assure him a thorough and balanced food supply at all times. This new process, utilizing an atomic reactor, will assure the soldier the finest type of meal assembly in or out of combat and effect tremendous savings by decreasing requirements for food refrigeration and reducing spoilage.

Vigorous research is under way and results thus far are most promising to protect him against the thermal effects of atomic weapons. It appears that combinations of protective clothing, shadowing or shielding devices and protective creams will provide effective means for reducing this type of casualty.

Exhaustive investigations continue with regard to blood plasma and whole blood, to save a life that might be lost otherwise. The freeze-dry technique has worked extremely well in preserving the fluid portion of blood, the plasma. As for whole blood, which includes blood cells as well as plasma, experimentally it has been shown that its shelf life can be increased from 21 to 60 days by the addition of non-toxic chemical preservatives.

And finally, another startling innovation! The Human Parts Bank! Human blood vessels, maintained in the living state by the freeze-dry process, are now widely used for repairing damaged blood vessels. This procedure has resulted in reducing amputations by 80 percent! Human corneas, so important in restoring or maintaining vision, can now be preserved for periods as long as nine months. Skin, bone and tendon can be held at temperatures just above freezing. The assets of such a life-saving banking system must inevitably increase with medical progress.

New realms to be explored in this exciting era are so many and their guide posts so unique, that often the imagination is staggered. From time to time you may encounter possibilities so different and so startling from anything you ever conceived that you may be tempted to

reject them by the simple, but sometime cynical, expedient of disbelief. In this regard, you might consider the wonderfully refreshing outlook expressed by the White Queen in Alice in Wonderland. I quote:

"I can't believe *that!*" said Alice.

"Can't you?" the White Queen said in a pitying tone. "Try again: draw a long breath, and shut your eyes."

Alice laughed. "There's no use trying," she said, "one *can't* believe impossible things."

"I daresay you haven't had much practice," said the Queen. "When I was your age, I always did it for half-an-hour a day. Why sometimes I've believed as many as six impossible things before breakfast."

The Honorable
WILBER M. BRUCKER
Secretary of the Army

THE U. S. ARMY'S TREMENDOUS RESPONSIBILITIES & ACCOMPLISHMENTS

IT is a privilege to be associated with you upon the occasion of the second annual meeting of the Association of the United States Army. You come together at a critical period upon an important mission. I am especially gratified to see so many new members drawn from outstanding elements of the civilian community. Your presence is indicative of the tremendous forward strides which have been made during the past year in building a dynamic organization with a powerful and influential voice.

We of the Army have unbounded confidence in the new civilian leadership of the Association,—its officers, trustees, and advisory board of directors. We know that such competent leadership will go a long way toward assuring even greater accomplishments. We can foresee better public understanding of the manner in which the Army is playing its indispensable role in America's program of national security.

This is a period of serious developments in world affairs. The communist empire is now at grips with increasing turmoil within its captive satellites. Daily bulletins point to discontent which has led to sweeping changes in Poland. They emphasize a growing spirit of defiance among other satellite nations which threatens the iron rule of the Kremlin.

From this present situation anything could result. This is no time for America to let down her guard. She must be prepared to cope with any eventuality. The safety of the Nation in these momentous times rests in large measure upon our Armed Forces, solidly backed by a determined American people. I assure you that the Army, as it fulfils its manifold responsibilities for the defense of the Nation, derives great encouragement from the active support of this revitalized Association, which is so broadly representative of America's civic consciousness.

Guardians of our freedom and dependable pillars of peace

The fundamental aim of American military policy is to support our foreign policy, of which it is an inseparable part. America's major goal is the prevention of war and the establishment of enduring peace in which will be enthroned the principles and human values which are the foundations of our enlightened civilization. Our Armed Forces are not only the reliable guardians of our freedom and national integrity,—they are also the most dependable pillars of our diplomacy for peace.

Foresight, imagination, and a bold and realistic approach to the problems of defense in the atomic age have characterized the development of our present military program. It is wisely designed to provide the required strength without jeopardizing the basic freedoms of our people or the vigor of our economy.

The team principle is fundamental to all our military efforts. Our interdependent Army, Navy, and Air Force work together to maintain the tridimensional power necessary to deal with any enemy on land, at sea, or in the air. Each member has a unique and essential role. Each complements and supplements the others. Our military policy is not shackled to a single concept of war, nor is it based upon any one weapon or family of weapons. A resourceful enemy could be expected to strike by one means or another at our weakest point. Hence we are not allowing ourselves to be weak or vulnerable in any particular. Our Defense Team is so constituted that it is ready for whatever emergency might develop during these critical years, —whether it be a global or general war, a local or limited

Sgt. and Mrs. Davis and Mr. Brucker

war, or any other form of aggression. It is capable of applying military power with proper discrimination to meet every situation with maximum effectiveness. Our Nation's powerful balanced forces include every essential element of defensive and offensive strength. As a team, they have the ability to fight successfully against any enemy, any time, any place, and under any circumstances, which is the only effective deterrent to an aggressor.

The U. S. Army in global perspective

Comprehensive briefings at this meeting have already emphasized the Army's vital mission as a member of the Defense Team. They have provided a striking panorama of our modern, streamlined Army and its substantial progress toward maximum capability under unprecedented conditions, including nuclear warfare. In order to evaluate properly these advances which have been made, we must consider the tasks which confront the Army today in discharging the grave responsibilities with which it is entrusted. We must visualize the Army in global perspective.

The United States is associated with 45 other nations in the most powerful system of collective security ever created. The Army stands guard shoulder to shoulder with the troops of our allied friends along the iron and the bamboo curtains as a potent reminder that we are ready to honor our international agreements promptly, and to oppose any aggressor with the full force of American military might. In support of our mutual defense alliances and other arrangements, nearly half the strength of our Army is stationed overseas in 73 countries. Almost all of these agreements envision the early commitment of Army forces if aggression should occur.

My inspection trips during the past year have taken me to the farflung outposts of our Army throughout the world. I know at first hand the magnitude of its job and how well it is meeting its obligations.

The United States Seventh Army, the most superbly equipped and splendidly trained operational army the United States has ever had in the field in time of peace, is deployed across western Germany. With its ever-increasing atomic power, the Seventh Army is the keystone of NATO's ground defenses. Its major forces consist of five crack divisions,—two armored, two infantry, and one airborne—together with three armored cavalry regiments. These are backed by units armed with Corporal guided missiles, Honest John rockets, and 280-millimeter guns, all capable of delivering atomic warheads. It is already using electronic communications with the continental United States to order repair parts for its equipment instantaneously, and gets them by air and fast sea transport, bypassing depots overseas. This modern army is an impressive deterrent against aggression in Europe, and a powerful force with which to fight if deterrence should fail.

Stretching back across France to the Bay of Biscay is a line of communications, manned by Army troops, which has the mission of supplying the Seventh Army and other United States forces under NATO command should hostilities start. Also, an Army regiment in Berlin is solid evidence of America's military might to that heroic island of freedom, and an ever-present reminder and warning to the surrounding communists that America means business.

Gen. W. D. Palmer leads a distinguished group down the steps to Sheraton Hall. Behind are: Gen. Ridgway, Mr. Slezak, Gen. Taylor, Gen. Weible (hidden), and Mr. Brucker.

In northern and eastern Italy, the Army's Southern European Task Force provides atomic support for NATO divisions defending that vital area. Equipped with Honest John rockets and Corporal guided missiles, this task force is the forerunner of an atomic support command organization specifically designed to reinforce with the most modern weapons the conventional forces of our allies.

In Korea, two combat divisions of our Army are deployed along the demilitarized zone, helping to guard against a renewed attack by the communist forces in position on the other side of the narrow corridor. Here the Army also continues to aid the 20 divisions constituting the valiant army of the Republic of Korea with equipment and training assistance. Army troops are supporting other mutual defense agreements in the Pacific area which involve Japan, the Nationalist Chinese government on Formosa, the Philippines, Australia, New Zealand, Thailand, Viet Nam, and Pakistan. The combat readiness of Army forces stationed in Japan, on Okinawa, and in Hawaii, and their ability to move rapidly within the Far Eastern areas if trouble should arise, give material substance to our national intent to preserve the peace.

Army missions in 44 countries of Europe, Asia, and South America are busy with the continued strengthening of our allies. Over 6,000 highly qualified Army troops are directly engaged in helping to train more than 200 allied divisions,—a sizable part of the Free World's military strength.

Here in the Western Hemisphere, the Army provides for the continental defense of the United States against airborne or seaborne troops. From far up in Alaska—where it is manning our northernmost outposts, almost within a stone's throw of the Soviet Union—all the way to the Caribbean, Army troops are protecting the hemisphere approaches. They are guarding the Panama Canal. Army antiaircraft units—a majority of them armed with the powerful and effective Nike guided missile—night and day share responsibility for the defense of our major cities and industrial areas against air attack. Nine Army divisions maintained in a high state of readiness are held in strategic reserve within the United States in order that we shall be able to reinforce our overseas garrisons without delay if the need should arise.

One of the Army's most important tasks is to prepare for the enormous expansion of its forces which would become necessary at once in the event of war. Throughout the length and breadth of the land, it is helping to train and fully equip our National Guard and Army Reserve. The increasing number and excellence of National Guard and Army Ready Reserve units constitute a priceless asset. From this reservoir of strength the Army would be able to draw immediately to build up its active forces.

Vast responsibilities matched by impressive accomplishments

The imposing array of responsibilities which rest upon our Army today are matched by its impressive accomplishments in the development and employment of new weapons, modern equipment, streamlined organization, and atomic battlefield tactics. The Army is fully abreast of the rapid evolution of modern warfare. It has promptly seized upon every advance of technology to insure that it will always be fully able to accomplish its mission under any circumstances.

The new AN/PPS-4 radar is demonstrated to Maj. Gen. J. D. O'Connell, Chief Signal Officer and General Chairman of arrangements for the AUSA meeting; Mr. Brucker and Gen. W. G. Wyman, CG, CONARC.

Today's Army is well along in transition from powder to atomics, from cannon to missiles, from trucks to helicopters, from field glasses to airborne television, and even from shoe leather to individual aerocycles. The 101st Airborne Division in training at Fort Campbell, Kentucky, embodying the most advanced concepts of streamlined divisional organization, tactics, armament and equipment, is one illustration of the dramatic break-away from the concepts of the past which the Army has made within a few short years. It epitomizes the realistic application of the best of American scientific genius and industrial "know-how" to problems of defense in the atomic age.

The Army has stocked its arsenal with a variety of powerful atomic weapons precisely tailored to its needs, which could be used with discrimination against all targets —far distant as well as close-in. The Army can deliver its punch with complete accuracy day or night despite rain, snow, fog, or any other weather condition. The Corporal guided missile, the Honest John rocket, and the 280-millimeter gun which are now in the hands of troops constitute

only a beginning. With its 13 years of pioneering experience with the development of missiles and rockets, the Army is moving ahead rapidly throughout the field in perfecting both weapons with atomic warheads and those with high-explosive warheads. Among them are the Dart antitank missile, the Little John free rocket, the Redstone medium range ballistic missile, and the intermediate range ballistic missile Jupiter. The first troop unit to be armed with the Redstone was recently activated. This reliable weapon will add immeasurably to the capability of our artillery.

Great progress was made during the past year in the development of Nike B—or Nike Hercules, as it is now known—the second member of the redoubtable Nike family of antiaircraft missiles. Nike Hercules is a more lethal, more maneuverable, and faster missile with much greater altitude and range than Nike Ajax. Less spectacular, perhaps, than the Nikes themselves, but equal in significance, is the Missile Master, the most modern and elaborate electronic "brain" thus far designed for the selective control of large numbers of antiaircraft missiles.

Although we are stressing the development of atomic weapons, missiles, and rockets, we are not overlooking the importance of continued improvement of conventional weapons, which are urgently needed for the accomplishment of countless specific tasks with which a field army is faced. In any situation that might develop, you can be sure the Army will have the means at hand to apply the exact amount of force required,—from the silent thrust of a bayonet to the blast of a powerful guided missile.

Our streamlined Army has impressive mobility, both strategic and tactical, which would be a prime factor of success in any war we might be called upon to fight. Our units can be moved by air across continents and oceans if necessary in time to reinforce our overseas garrisons promptly and deal effectively with local aggression. Our paratroops can be moved into combat by tactical airlift. By means of the new assault air transports our infantry divisions can now attain within a battle area, air mobility comparable to paratroops. Increased emphasis upon the development and use of helicopters and light, fixed-wing planes is solving difficult problems of observation and fire control, the command and resupply of dispersed units, and the rapid movement of small bodies of combat troops. The Army has achieved unprecedented ground mobility by means of new and versatile vehicles adapted to every kind of terrain from the frozen arctic wastes to the desert and the jungle.

On any field of battle the Army could get its troops where they were needed, when they were needed and with the punch needed for victory. Moreover, the rugged, "built-in" staying power of our new troop units is a most important asset that would tip the scales in their favor under whatever rigorous conditions they might have to fight.

The U. S. Army is part of the American people

Because this great United States Army is on constant guard throughout our country and at outposts in all parts of the world, ready to go into effective action in defense of the Nation, the citizens of America can face each day with greater confidence. The Army is not something far removed from the people. Despite its atomic weapons, guided missiles, tanks, and all the rest of its stupendous equipment, it is as much a part of every American community as the policeman on the beat. It is a national fire brigade,—ready if the bell rings. It is made up of the sons and daughters of hundreds of thousands of American homes. It touches every aspect of American life. In the final analysis every American bears a share of the responsibility for the Army's success in carrying out its mission, for it draws its vitality from the imperishable strength and solid support of the American people.

The Association of the United States Army, therefore, has an especially challenging opportunity for service to the Nation. It can very properly help to increase public understanding of this Army of the people of America,—its vital tasks, its worthwhile programs, its reassuring capability, and its splendid dedication. I venture to suggest specific areas in which, it seems to me, the Association can make especially valuable contributions to the continued effectiveness of the Army.

AUSA can help the Army solve its problems

For example, your strong backing will go a long way toward assuring the success of the Army in creating an adequate Ready Reserve. The existence of large, organized Army Reserve forces which can be called into active service on very short notice is fundamental to our defense policy.

Mr. Slezak, Mr. Martin and Mr. Finucane visit the industrial exhibits.

It is an indispensable part of our insurance against defeat if we should become involved in war. It is an equally essential element of our ability to prevent war. It serves to make crystal clear to any potential aggressor that we are not only ready to fight if we are attacked, but, of even greater consequence, that we have the "defense in depth" with which to win. Could anything be any more important to the future security of the United States?

Another place in which you can render invaluable assistance is the encouragement of high caliber young Americans to choose the Army as a career. Skilled and courageous men are the vital ingredient of our military strength. The Army will always need them. It does not gauge its strength in numbers, but rather in the quality and devotion of its members. As warfare becomes steadily more complex and more demanding of the individual, the premium on quality rises higher and higher.

Yesterday Sergeant First Class Floyd A. Davis, one of the members of the Army's first Redstone guided missile battalion, addressed you. He is an excellent example of the highest type of career soldier. He represents the kind of splendid young American men our modern Army has in its ranks. I know you were impressed by Sergeant Davis and I am sure his message brought home to you the dedicated spirit in which our career soldiers serve. Men like Sergeant Davis constitute the backbone of the Army. Stand up, Sergeant Davis—we are proud of you! Is Mrs. Davis here? She is—then, Mrs. Davis, would you please stand up and let everyone meet you. *[Rising ovation]*

Mrs. Davis, this gives me an opportunity to pay my respects to you and all Army wives. You are doing a grand job. I have seen Army wives around the world. We are proud of you girls. It is important that young Americans in search of a career understand what the Army has to offer, the opportunties for the development of outstanding leadership it affords, the lifelong satisfactions to be derived from their service. Your influence can be of great importance in enhancement of the prestige of the career soldier in the minds of his fellow members in the community. You can assist the Army in the solution of problems pertaining to dependent housing. You can take an alert and active interest in resolving problems of community relations involving the personnel of nearby posts, camps and stations. You can take the lead in public recognition of outstanding service by the men and women who wear the Army's uniform. There is really no limit to what you can do in all these and other important areas.

The future safety of America and of our American heritage depends to a large extent upon the imagination, creative thinking, initiative, and selfless dedication we all bring to the tasks that come to our hands today. Devotion on the part of every individual to the Nation's cause in whatever way he can serve it will always be the key to security. The United States Army has a tremendously important job—a job it will always be capable of performing. We can be sure that no matter what tomorrow may bring, our Army will continue to justify the same confidence in the hearts of the American people which it has merited so well ever since the founding of the Republic. We have good reason to be proud of our connection with it, and gratified by every opportunity afforded us to contribute in some measure to its continued effectiveness.

An Army ever true to its traditions

In the Secretary of the Army's office there stands a new flag,—it is the flag of the United States Army. To it are affixed 145 battle streamers—each in the colors of its particular campaign. Every battle streamer has been earned during the 181 years of the Army's service to the nation, from Ticonderoga in 1775 to Korea in 1950-53. What a matchless record of devotion to duty!

Symbolic of this service are countless thousands of little white crosses all over the world,—mute testimony of heroism unto death of hundreds of thousands of Army officers and men in every dark hour of our country's trials. The Army stands ready to do it all over again if it becomes necessary for us to champion our nation's cause on the battlefields of the future. There is a song that expresses the determination of the marching hosts of the Army to do battle for the cause of Free Men. It is "The Battle Hymn of the Republic":

> "He hath loosed the fateful lightning of
> His terrible swift sword;
> His truth is marching on."

General
WILLARD G. WYMAN
Commanding General, Continental Army Command

WHAT THIS MEETING HAS MEANT TO ME

WHEN I received the invitation to speak at this luncheon, I must confess that I accepted with mixed emotions: Gratitude for the honor . . . appreciation of the opportunity to break bread again with old friends . . . but with considerable apprehension lest you expect me to say anything about National Defense not already covered most eloquently by my distinguished predecessors at the podiums of this year's meeting.

I was somewhat relieved, therefore, when it was suggested that I discuss: "What this meeting has meant to me as a professional soldier."

Now that we have heard the inspiring and informative messages presented during the last three days by The Secretary of the Army, our Chief of Staff, General Taylor, and by their officers, I feel that the suggestion was especially fortunate. Not only because this meeting has meant a

great deal to me personally. But because the very wording of the suggested topic invites timely attention to a fundamental principle of our Association. To me, it is the underlying theme of this entire meeting—the motif of all that has been said and done here. And I feel that it deserves the emphasis of repetition: NATIONAL DEFENSE KNOWS NO PROFESSION.

The interest in the vital role of the Army to the nation's security which has brought us together and motivated our association far transcends the mundane concerns of any vocation or occupation. Where national defense is concerned, there is no distinction whatsoever between the best interests of the professional soldier, the ex-soldier, the part-time soldier, or the patriotic civilian! Where national defense is concerned, we are all full-time Americans.

Some of the outstanding contributions to our program again this year were made by public servants who have never worn a uniform. And I am happy to see among those present today so many representatives of industry and the press! In some cases their only qualification for membership in the Association of the United States Army is the only one that really counts: A dedicated interest—call it an enlightened self-interest if you will—in the preservation of the United States against any and every kind of enemy strategy, threat, or employment of armed force.

Tribute to the noncommissioned officer corps

I am equally happy to see that the "backbone of the Army" has been represented in our councils here—though I fear that the traditional description of the sergeant's worth to the Army has been so abused on the stage and screen that it no longer does justice to his intelligence. . . . I will never forget that it was a sergeant who won the battle of the hedgerows in Normandy with a bulldozer blade, a spot of welding, a tank and an idea. In our Association we solicit the advice and the membership of our sergeants.

It is also gratifying to see so many men here who wear their mufti with the unmistakable flair of the retired soldier. One of the rewards of Army life that I have always valued most is the privilege of knowing and serving with "die-hards"—the kind of men who never stack arms. You'll find them today in every field of activity from industry to education and youth guidance—still contributing a full-time effort after more than 30 years in uniform to the fundamental well being of our country. Certainly these men who have retired, but never tired, of serving their country, represent a vital element in our Association as well as a remunerative source of additional members that we must continue to canvass.

Last, only because they are "family," I am glad to see that our comrades-in-arms of the Navy and Air Force have been cordially represented at this meeting. Not present, but with us in spirit, I am sure, are many other distinguished officers of the Navy and Air Force—among them the brilliant Commander of NATO, Air Force General Lauris Norstad.

Certainly the view of national security attributed to General Norstad by Brigadier General Thomas R. Phillips in the September issue of *ARMY* magazine is in complete harmony with everything that has been said at this meeting. And I quote: "The deterrent strategy is no deterrent unless an adequate ground force is ready on the West's frontiers. The ground forces shield is an essential part of the deterrent strategy, just as important as the nuclear retaliatory force."

So I repeat: National Defense knows no profession—only full-time Americans!

Security and survival lies in the open, inquiring mind

Unfortunately, this underlying singleness of purpose which motivates our Association and unites the best interests of Americans in and out of any uniform is not always understood and appreciated by all members of the press and public. Sometimes the sincere voice of patriotism has been cynically discounted as the partisan voice of sinecurism. On the other hand, sometimes skepticism has been wanting when most warranted.

On the whole, however, we can be grateful that a healthy skepticism remains a national characteristic of our press and of the American people. Not only is it imperative to the democratic process of formulating public opinion, but it is equally essential to our national sanity in this age of mass media for disseminating words. Bombarded from morning to night by conflicting claims of advertisers and partisan groups—including the corrosive words of the enemy's agents and their fellow travellers in this country—Mr. and Mrs. America need to be skeptical to survive. And I mean that in more ways than one.

We of this Association welcome a vigorous and critical analysis by the press and public of all that has been said here during the last three days! The more vigorous and critical the better! That is one of the principal purposes that has been served by this meeting and by the dedicated men who have left their pressing duties to come here. Through the forum furnished by our Association, they have reported to the American people upon the Army's past achievements, present status, future problems and requirements.

To me, their joint report is an invitation to think that deserves to be accepted by every American. I only wish that the entire 180 million could have heard it in person. I wish, for example, that every soldier on active duty and in the reserves could have heard General Taylor and General Eddleman talk about the responsibility that the Army carries for our national survival in this nuclear age. And I wish that every American parent could have heard and shared our pride in what Secretary Brucker had to say about the way their sons in uniform are meeting this challenge.

I wish that every employer, teacher and teen-ager could have heard what Generals Erickson and Lindeman said about the Army's urgent need for combat-ready strength in reserves. I wish that every Doubting Thomas could have heard General Gavin describe the tools of war that the Army is developing to cut any future Goliath down to size. And I wish that every taxpayer could have heard Secretary Higgins and General Howze outline our grow-

ing pains as we field an Army capable of doing just this—anytime, anywhere that our national interests may continue to be threatened. Above all, I wish that every wishful thinker could have heard our experts debunk the bloodless dream of push-button security which has too long beguiled too many of our people.

Carry the AUSA message to the people

But wishing all of this won't make it so. Now it is up to us to carry their "invitation to think" back home, and insure that it is accepted where national security is actually born—at the grass roots of public opinion in each of our communities.

In a recent letter to the editors of *ARMY* Magazine, Captain Bill Glasgow of Calumet, Michigan, put it this way: "The American people control the Army's budget, policies, and role as a member of the defense team. They cannot make an intelligent estimate if they don't know the score!"

Let's tell them the score.

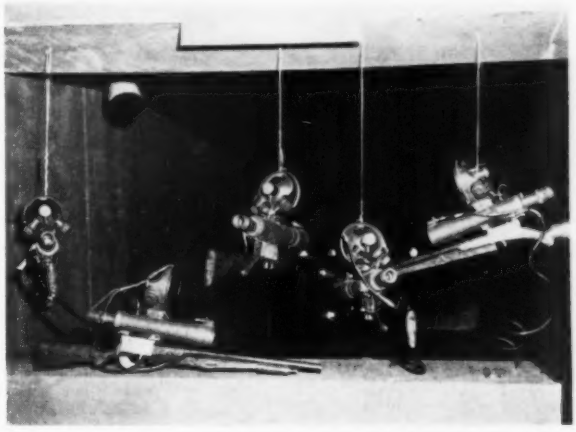
To me, this is a two-way obligation—an obligation to ourselves as well as to our fellow Americans. We, too, are taxpayers, parents, reservists and employers. Not only are we a responsible cross-section of the American people, but altogether we represent a potential membership for our Association of more than half of the adult males of the country. If we transmit what has been said at this meeting to our own potential membership alone, it will reach nearly every home in America.

There is yet another obligation which has been entrusted to the members of this Association, and I have been reminded of its importance many times during the course of our meeting. Seeing all of the old familiar division patches and regimental insignias worn here, I have been reminded of how much we owe to the traditions expressed by such mottos as: "Can-Do" . . . "Follow Me" . . . "It shall be done" . . . "Second to None" . . . "No mission too difficult; no sacrifice too great! duty first!." And seeing the familiar face of so many of the men who have lived those slogans on the battlefields of three wars, I have been reminded again of how much we owe to tradition in every field of human achievement.

Keeping faith with our traditions

One of the most disturbing symptoms of our times is the tendency to forget that the debt to tradition must be paid with interest by every generation or civilization would go bankrupt. In our haste to keep pace with the sweeping advance of our 20th Century science and technology, we are in danger of forgetting man's future need for the guidance of tradition. Even the word "tradition" is misused these days. Too often we are exhorted in the name of progress to "break with tradition!" What I hope the exhorters mean is that we must break the stale crust of custom. Not only does tradition show us high marks on the tree of life for mankind to surpass, but it provides us with footholds and indicates the direction by which to do it!

In no field of human endeavor is the knowledge and



Corps of Engineers . . . contruction power and infrared equipment

inspiration provided by tradition more essential to the life-line of our nation than in the Armed Forces which guard it today. Without tradition our great battle-teams would be merely expensive collections of weapons and men—merely that and nothing more. Our most powerful weapons would be impotent to defend us without men to use them who are motivated by tradition to preserve the nation regardless of cost to themselves. We will never find in a cyclotron or test-tube the *esprit de corps* that tradition can evoke from the human heart!

As the custodian of the Army's traditions, then, this Association has a solemn obligation to keep vigorously alive all of the military knowledge that we have inherited from the past, all that we have learned on the battlefields of three wars, and all that is meant by *esprit de corps*. By projecting our ideas of future warfare through our Army publications, we can help prepare the mental climate of America for the transition in tactics, techniques and doctrine during this crucial period of accelerated evolution in the art and science of war. At the same time, we can alert military thought against the loss of those principles of war and human values that are of timeless importance.

But tradition cannot be kept vigorously alive by the written word alone. There are many salutary examples to be found in military history which bear me out. For the culmination of my remarks, I have chosen one that I think has a timely bearing upon some of the most pressing problems of national security that have been discussed at this meeting.

Tell the world the secret of our faith

It concerns the discovery made by Maurice de Saxe in the middle of the 18th Century—long after the invention of gunpowder had accelerated the evolution of warfare to a degree comparable to that now being effected by nuclear fission.

With all of their mighty firepower, the armies of Saxe's day were so immobile and clumsy on the battlefield they could hardly have been a match for the Roman Legion of Julius Caesar's time. Weeks were required to march distances that the Legion with heavier equipment had covered in days. Masses broke and straggled. In the process of developing firepower over the centuries, armies had lost the secret of infantry mobility.

In vain students of war searched the writings of antiquity for the secret of the Romans. A Roman scholar had mentioned the military step of the Legion, but for a thousand years no one had been able to explain what the written words meant.

Finally, while watching a French Regiment "Beat to the Colors" one day, Saxe made his great discovery. After a thousand years, he alone knew the real reason for the military drum which centuries of soldiers had assumed was used just to raise martial spirit and fright the enemy. He alone knew the secret of infantry movement! In Saxe's own words, he announced it to the "world":

"Shall I say it, this great word which comprises all the mystery of the art of military movement, and which will no doubt seem ridiculous? . . . Have the men march in cadence! . . . There is the whole secret, and it is the military step of the Romans."

No doubt we can find other morals for the 20th Century in the bizarre incident of Maurice de Saxe. Certainly, it underlines the need for *men* as well as machines to keep in step with the times in this day of air mobility. Never—as General Howze so well brought out—has the need for mobility been more compelling, nor the penalty for lack of it more punitive!

No less apropos for our Association is the moral that the written word alone is not enough. We must activize our Army traditions before they can guide and inspire the leaders of tomorrow to respond successfully to the environment of the nuclear age. By personal example, word-of-mouth and eye-to-eye, we can tell our youth so much more than can ever be recorded on paper. The members of our Association now on active duty may have the most immediate opportunity to exercise this obligation, but it applies to all of us without exception.

Finally, there is the matter of complacency—not in the public mind, but in our own ranks. Though I have certainly seen no evidence of it at this meeting, in my opinion complacency has been the Army's worst enemy in the past and will be in the future unless we are vigilant against it.

Root out and eradicate that evil weed—complacency

With our professional knowledge of the timeless equation of battle, it is very easy for us to be complacent about the timeless role of the Army. We know that men on the ground with weapons in their hands will continue to be the conclusive element in any war so long as men live and work and sail the seas, and fly from bases on the ground. Despite the public attention that the glamorous growth of our partners in the Armed Forces has received and deserved, we have never really doubted this—nor should we do so now. But we must not be complacent about it.

The accelerated evolution in firepower that has already occurred in warfare demands many new tools, tactics and techniques. To enable the Army to play its vital role with traditional success, we are weaving new patterns for victory on the ground. But before men can act in new patterns, they must think in new patterns.

AN invitation to think and to act with renewed vigour in result of it is, in summary, precisely what this meeting has meant to me.

In conclusion, gentlemen, I call upon you for a well-deserved tribute to two of the many men whose dreams and tireless efforts planted the seed which led to the presence of all of us at this meeting. Although they made many notable contributions to national defense during their many years of distinguished service—both in peace and in war—someday their biographers may truly say that their greatest and most enduring achievement was: The bringing together of the many diverse interests of the Army into one Association.

Gentlemen, I ask that you join me in applauding General Jacob L. Devers and General Wade Haislip.

DISTINGUISHED PANEL DISCUSSED "THE ARMY IN THE MISSILE AGE"

Dr. H. F. Harding
was moderator of the panel. He is Associate Dean of Arts and Sciences at Ohio State University, Columbus. During the Second World War he was Chief of Staff of the Army's Replacement Training Command, Pacific Ocean areas.

Thomas F. Morrow
Assistant Group Executive, Defense and Special Products Division, Chrysler Corporation. He organized the Division in 1954 and has been involved in the production of tanks, fire control instruments, and the ballistic missiles program.

Robert T. Haslam
Director of W. R. Grace and Company. A member of the Army Scientific Advisory Panel, he is Chairman of the Mobility sub-panel. Trained as a Chemical Engineer, he has been associated with a number of large industrial corporations.

James E. Trainer
Executive Vice President of Firestone Tire and Rubber Company. He has had experience in the design and production of missiles, antiaircraft and antitank weapons. He served as a lieutenant in the Chemical Corps in 1918.

Frederick R. Lack
Vice President of Western Electric Company. Recently closely associated with the Army's missile program, he was Director of the Army and Navy Electronics Production Agency during World War II and was a lieutenant in World War I.

Walter Millis
Author and newspaperman. His most recent work is *Arms and Men*, a brilliant study of American military policy. For many years he was an editorial writer and military analyst for The New York *Herald Tribune*. He edited the Forestall diaries.

S. L. A. Marshall
widely known within the Army as an original explorer of close combat, he is also the chief editorial writer of The Detroit *News*. His most recent book, *Porkchop Hill*, follows *Men Against Fire*, *Bastogne* and other military books.

Dr. Edward Katzenbach
Director of the Harvard Defense Studies Program. He was formerly associated with the Institute of War and Peace Studies at Columbia University and has served as an officer in the Marine Corps. He has contributed to several periodicals.

Much as we would like to do so, time and space prohibit the publication of the complete transcription of the 90-minute panel discussion led by Dr. Harding. However, a hint of the trend of the discussion can be obtained from some of the question posed by the audience at the outset. Here they are:

Before we get into a discussion of the Army in the Missile Age we ought to have a basic platform from which to jump and I would like to ask the panel: What is the purpose of an army?

I would like some evaluation of the military significance of the current events in Hungary and Poland.

How far towards complete air mobility can the Army realistically hope to go?

How can we reconcile the conflicting requirements for mechanization in the Missile Age with air mobility requirements?

What role do you feel the Army plays as an instrument of national power and to what extent does it serve as a deterrent to aggression?

To what degree may we accept that this is the Missile Age? Is that a proper definition of what we are going into?

Is it realistic for the Army to hope that nuclear weapons in future warfare can be confined strictly to military targets?

Obviously, full answers to these questions would take far more than the allotted 90 minutes. But the panel stuck to essentials in a brisk and informative discussion.—The Editors.

Lt. Gen.
W. L. WEIBLE
President, AUSA

THE PRESIDENT'S REPORT

GENERAL WEIBLE: Will the meeting please come to order? Welcome to the business portion of the Second Annual Meeting. There is a lot to be done here and somewhat less than 90 minutes in which to do it. The first order of business is the report of the outgoing President—my report.

Nineteen Fifty-six has been a most significant year in the affairs of our Association. We have probably accomplished more in the past twelve months than in any other period in the Association's history.

You will recall that at the first Annual Meeting of our Association at Fort Benning last year two resolutions were passed directing the Executive Council to take the necessary steps to broaden the aims and objectives of the Association, to provide a wider base for membership in the Association and to expand our activities. As a result of this mandate from the membership, I appointed an Organization Committee headed by Major General Harry McK. Roper and gave them the task of recommending courses of action to the Executive Council. This Committee held numerous meetings and sought the advice and counsel of many outside the immediate Committee membership.

In order that the membership at large could be kept informed of the actions on which they were working, the Committee published in the February 1956 issue of *ARMY* magazine an interim report in which they outlined the reorganization proposal as it was shaping up and asked for suggestions from the membership at large. In addition, the advice and counsel of many senior leaders in the Army and our civilian friends were solicited.

PLAN OF REORGANIZATION

As a result of these efforts, the Committee recommended a plan for reorganizing the Association to accomplish four major purposes:

(1) To transfer the government of the Association to non-active-duty personnel;
(2) To broaden the aims and purposes of the Association;
(3) To establish new categories of memberships; and
(4) To increase the activities of the Association.

This, of course, entailed the preparation of new by-laws for our Association which the Committee undertook to draft. The reorganization proposal and the new by-laws were first presented to the Executive Council on 2 March 1956 after much preliminary discussion among the Council, and were finally passed by the Executive Council on 26 March of this year.

I will not describe at great length the details of our new aims and purposes and our new organization since each of you has received in your kit a copy of a brochure which we have prepared explaining these matters in detail.

In order to insure that the membership understood clearly the changes which we were making, I prepared a report outlining these matters which we published in the May 1956 issue of *ARMY*.

Following the adoption of the reorganization plan and the new by-laws, the Organization and Nominating Committees together prepared a list of nominees for the new Council of Trustees, the Advisory Board of Directors, and officers of the Association.

These nominations, with some changes, were approved by the Executive Council on 26 March 1956. I then dispatched letters to the nominees for the Council of Trustees and I am happy to say that we had completed the selection of our Council of Trustees by the first of August 1956, and I shall have the pleasure of introducing most of them to you a little later in this session. When we had completed the Council of Trustees, we then began to send out invitations to the nominees for the Advisory Board of Directors and as of the moment 22 prominent individuals have accepted.

On 20 September of this year I called an informal meeting of the Council of Trustees at the Pentagon so that we might have an opportunity to brief them on the status of Association affairs. At that meeting the Council nominated individuals to fill the various offices in the Association. These nominations were brought before the Executive Council and they were duly elected on 24 September 1956. It will be my pleasure to present them also.

CHAPTERS AND ROTC COMPANIES

The final assignment given to the Organization Committee was to formulate regulations for the chartering of Association chapters and ROTC Companies. These regulations were drafted and presented to the Executive Council for approval on 9 August 1956. You will be pleased to know, I am sure, that later in this session we will be issuing charters to the first of our chapters and ROTC Companies.

Before leaving the subject of reorganization, I should like to express on behalf of the membership our sincere appreciation for the splendid job which this Committee has done. I should like also to commend our Vice President, General Booth, who was directed by the Executive Council to monitor the implementation of the reorganization problems. I think you will agree with me that it has been truly an amazing task, accomplished in a short time.

I mentioned in passing the work of the Nominating

Committee which worked with the Organization Committee. I specifically mention the fine work which this Committee has accomplished. Colonel William Maulsby and his associates had no small task in selecting and recommending outstanding individuals from the various walks of civilian life who were also available to govern our Association during the coming months.

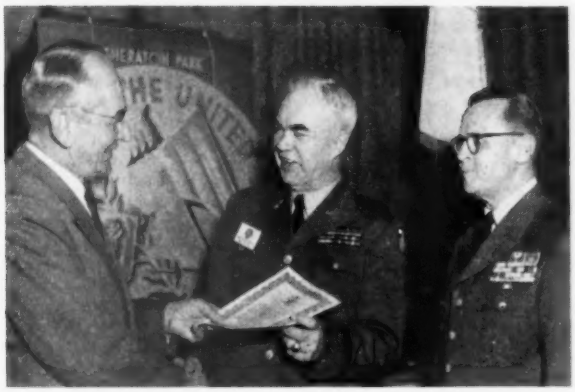
Still another area in which our progress has been most rewarding is in the field of memberships for our Association.

MEMBERSHIP: APPROACHING 50,000

The Membership Committee, under the chairmanship of General Westmoreland, had two specific tasks. First, to help us develop a program for encouraging more individual memberships in our Association, and secondly, to draft the plans for new categories of membership, including sustaining memberships for industry. The effectiveness of this Committee's work is best illustrated by a few figures: At the time of our last Annual Meeting just a year ago we had just over 30,000 individual members. The membership has increased more than one-third in the past year and today we have more than 40,000 members.

I say "more than" because the current influx has been so large that our membership department has fallen behind in its tabulations and an accurate count as of today is not possible. We are taking action to eliminate this backlog of work as quickly as possible. The current influx of memberships indicates that we will have close to 50,000 individual members by the year's end. This added strength

OUR NEW PRESIDENT PRESENTS FIRST AUSA CHARTERS TO LOCAL GROUPS



Mr. Slezak presents Charters to . . . Col. Joy R. Bogue representing the Fort Riley Chapter . . .

. . . Cadets Frederick F. Stiff and John Boyanowski representing the Penn State University ROTC Company . . .

. . . Lt. Col. William D. McDowell representing the Fort Leavenworth Chapter . . .

. . . Col. George A. Meidling representing the Fort Leonard Wood Chapter . . .

(Charters were also presented to Fort Sheridan and Fort Riley Chapters and Valley Forge Military Academy ROTC Company.)

to our Association is encouraging indeed.

We had planned to inaugurate our sustaining membership program for industry immediately following this meeting. However, our industrial friends forced us to change our schedule. As a result of numerous inquiries which we received in the Association offices, we have developed the nucleus of our program and already four industrial corporations have become members. We will, of course, bring this program to the attention of many more of our industrial friends in the very near future. It appears that this program will be eminently successful.

FINANCES: IN THE BLACK

The Finance Committee, headed by General Palmer, more lately by Colonel McCarthy, has instituted a budget system and investigated the Secretary's financial reports more deeply than could the Council as a whole.

This Committee's recommendations have been extremely helpful to the staff, especially in the fields of financial policy guidance. Although the work of a committee of this nature does not lend itself to concrete examples of its labors, I do know that the long hours of thoughtful assistance that the Committee has given the staff, and the analyses that the Committee has given the rest of the Executive Council, have been extremely beneficial to the Association. I might add in connection with this Committee's work that upon the Committee's recommendations the Association has sold its last World War II-acquired warehouse at a profit and all activities are now housed in the building at 1529 18th Street.

Upon the advice of the Finance Committee, the Secretary during the past year has disposed of more than 25,000 books of World War II vintage, 14 contracts with another Government agency for services have been closed out and 5 remaining contracts will be closed out during the next calendar year. I mention these items to indicate that your national headquarters is more and more concentrating its efforts on the aims and objectives of the Association, including a bigger and still better magazine, the organization of chapters and ROTC Companies, and building the influence of the Association in quarters where it can help in its primary mission of interpreting the Army to the people.

The Association is operating at a profit. This year will show an appreciable black figure—this has not always been so and is one of the reasons we formerly took on outside work to raise revenue. It takes money to do the things the Association wants to do, but thanks to increasing membership and advertising revenues we can concentrate all our efforts on building a bigger and better Association to fulfill the Association's mission.

As one example of the trend, our gross advertising this year will be over $73,000 compared to $47,812 last year. Our advertising revenues have increased substantially each year since we first started taking advertising late in 1950. Naturally as business and industry become better acquainted with our operation we can expect continuing increases.

ARMY MAGAZINE: LARGER AND BETTER

The Magazine and Publicity Committee, headed by General Bunker but more lately by General Abendroth, has reviewed the editorial policy and other problems of the magazine on a continuing basis.

The substantial increase in revenues which has permitted the publication of more pages this year than in any year of the Association's history has given us the opportunity to present a wider range of material and, where desirable, at greater length.

It has also permitted a slight increase in fees paid to authors and the spending of more money on design. The appearance of multi-colored advertising has made it possible to utilize colors in editorial pages without increasing the production costs.

On the all-important subject of what to publish, the principal problem of the Editor remains that of trying to meet the needs of all elements of our membership and at the same time to present Army-wide viewpoints and the Army's story to the general public in clear and forceful terms. This problem involves several points:

(1) To present timely information and arguments on the need for modern Army forces under today's conditions.

(2) To present and explain Army-wide programs and problems to our readers.

(3) To meet so far as possible the specific problems of the several branches.

(4) To satisfy the varying requirements of our enlisted members and our company grade, field grade and general officers.

(5) To provide content meeting the needs of the active-duty Army without neglecting the needs of the Army Reserve and National Guard.

With the Committee's guidance, it is my belief that the Editor of the magazine has done an outstanding job within the limitations of money, personnel and security regulations, with which he has had to contend.

ANNUAL MEETING COMMITTEE

I of course want to mention the activities of one other of our Committees, namely the Annual Meeting Committee, Major General J. D. O'Connell, Chairman. The fruits of their labors are self-evident and I am sure that all of you agree with me that the program which they have arranged for us this year has been truly an outstanding one. The Committee deserves our earnest commendation for the many hours and the detailed effort which such a meeting as this entails.

1956 THE BEGINNING

To summarize, we have just completed the most satisfactory year in the history of the Association, and from all appearances this is just the beginning. If we can sustain the present enthusiasm among members, commanders of all components, and the Association staff, the person who reports on the progress of the Association at the third Annual Meeting will have a pleasant task indeed. There is much to be done but we have the organization and the will to do it.

This concludes my report.

MINUTES OF SECOND ANNUAL MEETING

ASSOCIATION OF THE U. S. ARMY

The Second Annual Meeting of the Association of the United States Army was held on Saturday, 27 October 1956, at the Sheraton-Park Hotel, Washington, D. C.

The meeting was called to order by the President at 1045 hours.

The President introduced the following members of the incoming Council of Trustees:

Mr. Willard F. Rockwell, *Chairman*
Gen. Charles L. Bolte
Maj. Gen. Harry McK. Roper
Mr. Robert L. Biggers

The President also extended the regrets of the members of the incoming Council of Trustees who could not be present:

Gen. of the Army Omar N. Bradley
Gen. Alfred M. Gruenther
Gen. John E. Hull
Gen. Lucius D. Clay
Lt. Gen. Milton G. Baker
Brig. Gen. David Sarnoff
Mr. Don Belding

The President introduced the incoming officers of the Association:

President—Mr. John Slezak
Vice President—Maj. Gen. Leif J. Sverdrup (who was absent)
Vice President—Gen. Matthew B. Ridgway

General Weible stated that under the By-Laws adopted on 20 March 1956, the Chairman of the Council of Trustees, the officers, and the members of the Council of Trustees would take office immediately at the conclusion of this meeting.

Mr. Rockwell spoke briefly on the future role of the Army and the Association of the United States Army, and the challenge faced by the Council of Trustees.

The President read his final report, a copy of which is attached as part of these minutes. [See page 74.]

The President reported that applications for the establishment of chapters had been received from Fort Leonard Wood, Fort Leavenworth, Fort Riley, and Fort Sheridan, and recommended that chapter charters be issued. He stated that the Fort Riley application for charter was accompanied by three thousand applications for membership.

It was moved by Brig. Gen. William J. Thompson that the four applications for chapter charters be approved. The motion was seconded from the floor and carried unanimously, whereupon the representative of each chapter was presented its charter by Mr. Slezak.

The President reported that applications for charters as ROTC companies had been received from Pennsylvania State University and Valley Forge Military Academy, and recommended that charters as ROTC companies be issued.

It was moved by Col. John Lemp that the two applications for ROTC company charters be approved. The motion was seconded from the floor and carried unanimously, whereupon the representative of each ROTC company was presented its charter by Mr. Slezak.

The President expressed the hope that there would be little delay in the formation of other chapters and ROTC companies.

The President opened the meeting to the submission of resolutions, after indicating that General Lindeman's resolution on an Army Memorial, having already been approved by the Executive Council, would be the only one to have full force

The new President of AUSA—Mr. John Slezak—is introduced during the business session. Applauding are Mr. Robert Biggers, Gen. Matthew B. Ridgway, Gen. Charles L. Bolte, Maj. Gen. Harry McK. Roper—all members of new AUSA Council of Trustees—Col. Arthur Symons, AUSA secretary, and Maj. Gen. D. P. Booth, retiring Vice President.

The new chairman of the Council of Trustees—Mr. Willard F. Rockwell—addresses the business meeting

and effect if it passed at this meeting. Other resolutions, offered from the floor, must be ratified by the Council of Trustees before they became effective.

Brig. Gen. Philip F. Lindeman introduced the following resolution, and moved that it be passed:

WHEREAS, The United States Army is the oldest fighting force of our country; and
WHEREAS, Members of the United States Army have written the history of our country in deeds of valor; and
WHEREAS, There is no existing memorial or museum to attest to these outstanding achievements, and glorious service;
NOW, THEREFORE, BE IT RESOLVED, That the Association of the United States Army undertake and sponsor the erection of such a memorial; and
BE IT FURTHER RESOLVED, That a Committee be appointed for the purpose of fulfilling this objective.
The motion was seconded from the floor and carried unanimously.

General Lindeman also introduced the following resolution, and moved that it be passed:

WHEREAS, Lieutenant General Walter L. Weible has been President of the Association for two terms; and
WHEREAS, Under his outstanding leadership the Association has prospered and grown; and
WHEREAS, He was the moving spirit behind the reorganization of the Association, to strengthen its stature;
NOW, THEREFORE, BE IT RESOLVED, That this Second Annual Meeting of the Association of the United States Army recognize with appreciation and thanks the outstanding work, loyalty and leadership that he has given our organization.
The motion was seconded from the floor and carried by acclamation.

Brig. Gen. Donald Armstrong introduced the following resolution, and moved that it be passed:

WHEREAS, The Honorable Wilber M. Brucker is the Secretary of the U. S. Army; and
WHEREAS, During his tenure of office, his dynamic leadership, devotion to our great country and its national security problems, his strength of character and his dedication to preserve and uphold the great traditions and purposes of the U. S. Army have given the Army and the people renewed confidence in the vitality and indispensability of the Army as an instrument of national security; and
WHEREAS, With his guidance and support the prestige of professional military service has been increased and the conditions of service throughout the Army improved; and
WHEREAS, Secretary Brucker with vitality, energy and enthusiasm has provided brilliant leadership in modernizing and improving the readiness and mobility of the U. S. Army;
NOW, THEREFORE, BE IT RESOLVED, That he be made aware of the admiration and appreciation of the members of the Association for his significant contribution to the preservation of peace and freedom throughout the world during his service as Secretary of the Army.
The motion was seconded from the floor and carried by acclamation.

Col. E. A. Chapman introduced the following resolution, and moved that it be passed:

WHEREAS, The Assistant to the Vice President of the Association, Colonel Robert F. Cocklin, has for the past year been a main driving force behind the phenomenal growth of the Association; and
WHEREAS, Colonel Cocklin has been instrumental in the organization of this meeting; and
WHEREAS, During his long association with this organization he has given selflessly and tirelessly of his energies and his time;
NOW, THEREFORE, BE IT RESOLVED, That he be made aware of the esteem and respect in which he is held by the membership and that consideration be given to some form of reward by the Executive Council.
The motion was seconded from the floor and carried unanimously.

The President announced that the Association was in receipt of a statement by The Honorable Daniel J. Flood, Member of Congress from Pennsylvania.

The President announced that Gen. John E. Dahlquist had made awards of stock to Lt. James E. Buckley and Lt. Col. Frank L. Hickish, to be presented at this meeting. Due to the absence of the recipients these presentations will be made privately.

The President expressed his personal thanks, as well as those of the Association at large, to those responsible for planning and for the smooth functioning of the events connected with the Second Annual Meeting. He named Maj. Gen. John G. Van Houten and the entire staff of the Military District of Washington for their all-out cooperation and assistance, and in particular Major Martin Davis, Assistant G3 of MDW, for arranging the military exhibits; Major Joseph Agee for arranging transportation; Capt. William V. Roberts for coordinating billeting; Col. William T. Ryder, Chairman of the Exhibits Committee; Col. William DePuy for arranging the Panel Discussion; Col. Trevor N. Dupuy for assisting with the Panel Discussion arrangements; the Army Pictorial Service, Col. W. W. Lindsay in particular, and Mr. Eric Burtis for the projection work; the large group of Signal Corps television technicians; to all these, and to those not mentioned by name, the President expressed his deepest appreciation.

The President also expressed his appreciation to the staff of the Association at national headquarters, managed by Col. Arthur Symons, for the long hours of devotion to duty during the last several days.

There being no further business, the meeting adjourned at 1155 hours.

ARTHUR SYMONS
Colonel, Arty, USAR
Secretary

OFFICIAL SUPPORT FOR AUSA

Text of the Secretary of the Army's Letter to all Major Commands and Installations

1 NOVEMBER 1956

SUBJECT: Army Policy Concerning the Association of the United States Army

TO: Major Commanders in ZI & Overseas; Class I, II, and III installations in ZI

1. The Association of the United States Army was reorganized in 1955. The primary purpose of that reorganization was to consolidate the efforts of all who support the United States Army as an indispensable instrument of national security. Prior to 1955, the Army's interests had been divided and its efforts distributed between the narrower interests of branch, service, and component. The reorganization, therefore, served a twofold purpose: (a) It brought the branches, services, and components closer together to work as a team; (b) It combined those elements into one strong voice whenever the occasion required.

2. The objectives of the Association are manifold. Its chief concern, however, is its complete dedication to the advancement of the security of the United States and it proposes to devote its full resources and capabilities to that end. In these days of startling technological advances and complex military and political developments, there is a great and continuing need to inform the American people about the fundamental facts and factors involved in our national security. Another major aim of the Association is to contribute to further public understanding of the United States Army and its vital activities. Additionally, the Association assists its members by providing the means for an exchange of ideas and information on military matters. Of extreme importance is its contribution in perpetuating Army and Unit traditions, and perhaps even more importantly is the means which the Association provides to foster the spirit of fellowship among former, present, and future members, and friends and associates of the United States Army. Last but not least, through its magazine, *ARMY*, the Association contributes a professional military publication devoted to the military arts and sciences.

3. The annual meetings of the Association create great interest and attract much support for the Association among its friends in industry, business, the Press, and education.

4. This year, at the second annual meeting in October, the management of the Association was transferred to officers and to an Executive Council elected from among members who are not on active duty. That step was taken so that the Association may exercise its right to express its own independent opinions.

5. The principal activities of the Association, in addition to its annual meeting and in addition to the publication of *ARMY* magazine, are the following:

a. *Press Information and Public Relations.* The Association considers general public relations for the Army to be one of its prime objectives, and it is expanding its efforts in this field to include:

(1) A press information and research bureau.

(2) Establishment of a writer's and speaker's bureau.

(3) Establishment of regional organizations to provide a means for the diffusion of information relating to the Army and national defense.

b. *Forums and Panel Discussions.* From time to time during the year the Association sponsors symposiums, briefings, and panel discussions for members of industry and the Press, relating to developments within the Army, of general interest to the public at large, or to certain segments of industry.

c. *Information for Business and Industry.* The Association has developed a series of photo record charts which are widely distributed to business and industry and are designed to explain graphically the organization and operation of the Army.

d. *Contributions to Esprit de Corps.* The Association promotes those Army and unit traditions which contribute to *esprit de corps* by a program of prizes and awards for outstanding performance in the Army school system. The Association is inaugurating an ROTC and military cadet Army society. The Association successfully promoted the adoption of an Army flag and is now considering the sponsorship of a suitable Army memorial.

e. *Publishing Military Books.* The Association, through its book publishing activities, makes available important military books of great professional value. Many of these books, because of their professional nature, cannot be successful commercial ventures and therefore they would not be published without the sponsorship of the Association of the United States Army.

f. *Regional Organizations.* The Association is establishing, throughout the United States, regional organizations to assist it in accomplishing its aims and objectives and to assist commanders by providing local organizations of Army supporters.

6. The relationship between the Department of the Army and the Association of the United States Army, although unofficial, must be close and cooperative. Without prejudicing the independence of the Association, I desire that commanders at all echelons render the Association the maximum support and encouragement. During the organization of regional chapters, the Association will have the greatest need for assistance in connection with the organization of membership, the provision of meeting places, the provision of qualified speakers, and the attainment of local recognition. In my opinion, the success of the Association is a matter of vital interest to the Department of the Army. I therefore urge that no effort be spared by any member of the Department in supporting the Association and its objectives to the maximum extent of his abilities.

WILBER M. BRUCKER
Secretary of the Army

Deep Thrust With a One-Two Punch

—that's the Atomic-Airborne Team

CAPTAIN THOMAS M. WAITT

The red warning light flashed on and through the open para-door of the old C-46 I could see the familiar mushroom-shaped cloud. Although the wind had blown it some distance away from ground zero it still held its unmistakable shape. Then the green light flashed on and we exited into what was the first parachute jump into an area just blasted by a nuclear weapon.

IT had all started some two months earlier, in February, 1952, when my company—F of the 504th Airborne Infantry—was selected to go from the Longhorn maneuver in Texas to Las Vegas, Nevada, to participate in an exercise involving an atomic weapon. Although all of us had some misgivings as to what part we would play, we were happy to miss the arduous convoy trip back to Fort Bragg. Especially happy was our mess sergeant, who was heard to remark, "Thank God I won't have to rassle pots and pans for two thousand miles in the back of a deuce and a half." He was to be sorry later.

On arriving at Camp Desert Rock in Nevada we found that this was not a simple exercise designed to test the employment of airborne troops in conjunction with an atomic strike, but a scientific inquiry by "head shrinkers" who wanted to study the psychological reactions of men who jumped near ground zero after an atomic explosion.

It was cold that April morning of 1952. The company was stretched out along three trenches facing ground zero. A B-36 was to drop the atomic egg in an air burst. Immediately thereafter Company F was to be rushed on trucks to the loading zone, emplaned in four C-46s and flown to ground zero. Our drop was to be a bare thousand yards off "X marks the spot." As the B-36 droned overhead all of us wondered how it would go. We listened to the countdown from the loudspeakers: 10, 9, 8, 7, 6, 5, 4, 3, 2, 1, FIRE! It was a real beauty and we were closer to it than anyone had been previously. We emplaned and took off. The ride was short—unbelievably so. It seemed as though we were barely airborne before we got the red light and the green "let's go" light.

The drop came off in excellent fashion. We suffered few casualties, our unfortunate mess sergeant suffering the most serious, a broken back. Upon landing and getting out of our harnesses, we quickly formed and began the simulated attack on ground zero. Ninety minutes had elapsed since the air burst and our jump. Specialists, who monitored ground zero with their Geiger counters, later told us that we could have made the drop ninety seconds after the burst without danger of ground contamination! Later, on observing the effect the blast had on the equipment and dummy troops placed in and around ground zero, the thought came to me that if it had been for real we could have accomplished our mission easily.

Four years later when I was reading a book on military doctrine of the United States by an Air Force general, the whole Nevada exercise came back to me. I had written a monograph on the subject while attending the Advanced Course at Fort Benning in 1952-53, but the intervening years had erased a lot of it from my memory. But the book set me to thinking again. It seemed to insist that as an infantryman I was about as obsolete as a keystone bomber. I didn't go for that. The infantryman leaves no contrails, but he can hold ground. Seize it, and hold it.

Consider the impact upon warfare in general that has followed the use of airborne forces in World War II. The German airborne invasion of Crete and the reduction of the Belgian Fort Eben Emael by a handful of German paratroopers (seventy-two in number) and one squad of pioneers opposing the fort's garrison of 1,200 are both classic examples. Our own Allied airborne operations in both the Pacific and European campaigns all point

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Captain Thomas M. Waitt, *Infantry,* was commissioned in 1944 and fought in the Pacific during World War II. A senior parachutist and wearer of the Combat Infantryman Badge, he commandcd a rifle company in Korea for ten months. He is a graduate of the 1952-53 Infantry Officers Advanced Course, and is now taking night courses at the University of Maryland. He hopes to continue work for his Master's degree in Psychology. Captain Waitt is assigned to the Department of the Army Staff.

toward the effectiveness of the vertical envelopment.

The very fact that an army possesses an airborne potential causes the opposing side to withhold units in readiness to combat any use of airborne by the enemy. Its very presence in a theater of operations presents a real threat to any opposing forces.

Atomic warfare is bringing about changes in our doctrine of offense and defense, changes which are becoming increasingly apparent. Dispersion of forces on the battlefield and new methods of attack utilizing atomic weapons are being developed.

KEEPING all this in mind, let's take a look at the tactical doctrine of our logical enemy.

His manpower far exceeds the potential of the United States Army. This is reflected by his reliance on mass, in the attack and when defending. His doctrine of attack contemplates a concentration of his forces into great masses of infantry, armor and artillery. This, of course, is common knowledge, and undoubtedly our potential foe is well aware of his vulnerability to an atomic explosion at such crucial moments as those immediately preceding his attack. His plans, however, probably assume air superiority and his willingness to accept great losses. His defense relies on the use of mass in organized pockets of resistance in great depth. This depth can extend to a distance of thirty miles or more.

From this, we arrive at two basic assumptions: first, that in any major war with such an enemy, we must think in terms of our regiments opposing divisions and corps, and our armies opposing enemy forces in similar ratios; secondly, in order to narrow these ratios, we must devise combined-arms teams which will make the best possible use of the manpower and atomic fire power at our disposal.

I am not concerned here with the strategic use of the atomic weapon, but rather with its use tactically against ground forces. It will be used in two ways: one, in close support against front-line enemy positions and their immediate reserves; the other, in deep support, generally, against masses of men or important objectives which may be far in the enemy's rear. I believe that its most important use will be against deep support targets.

It is clear that our possession of stockpiled tactical atomic weapons has added an important factor in battles. It is vital, however, that we do not make the mistake of failing to take full advantage of them. It is well to remember, for example, that in World War I, when the Germans first used gas on 22 April 1915 at Langemarck opposite a sector held by the French (and two days later against the Canadians in the same area), they might have won the war then and there. Had they ruthlessly followed up the attack it might have carried them to the English Channel and victory.

No matter how effective the new tactical atomic weapon may be as a means of destruction, battles and wars are won by infantry occupying ground.

IN order to capitalize fully on the effects of an atomic blast used tactically, we must place infantry in the target area minutes—not hours—after the blast. I visualize an air-burst type explosion in which ground contamination is negligible rather than the ground-type burst with its heavy contamination. The ground-type burst is not practicable for troops in the open but rather for dug-in emplacements where its cratering effect pays off.

The combination of an atomic weapon and an airborne battle team will give us a force capable of overcoming the enemy's advantage of superior manpower and equipment. I call this combination the Atomic-Airborne Team.

This, of course, will require a high degree of coordination between the launchers of the atomic weapon and the airborne unit. Let's consider each separately and then combine the two.

THE first use of the atomic bomb on the Japanese cities led many people to believe that the ultimate weapon had been devised. They believed that the country possessing such a weapon would hold the balance of power. This meant that atomic weapons alone provided the means for a decisive victory over any enemy in future war.

Today, we realize that it is not so simple. Even with the development of the thermonuclear bomb, which increases many times the power of the original atomic weapon, our problem is not solved. Not all enemy troops subjected to atomic attack will become casualties if they have been properly trained in defensive measures. It will be necessary to close with and destroy or capture the enemy's combat forces.

It may be and probably will be a fact that we will be unwilling, in some theaters, to use these great destructive effects. Our enemy will, perhaps, be holding the territory of our allies. We will have to fight ground battles to defeat him. Air power alone cannot do it. Coordinated land, sea and air forces will be required. Since we must fight our battles on the ground, we want to use this atomic power to help accomplish our mission.

AT first, the only targets thought suitable for atomic attack were large centers of population and industry. It seemed impractical to use atomic weapons against large troop concentrations and enemy units in battle formation. Our possession of a limited supply of atomic weapons also precluded such use. Now, with reduced costs, production-line assembly methods, and suitable stockpiled weapons, we can afford to hit important military objectives on the battlefield. Today, the atomic weapon is no longer restricted to strategic use but is available at troop level.

Targets suitable tactically for atomic attack are front-line enemy positions, large concentrations of enemy troops and reserves, artillery and vehicles, communications centers, enemy build-ups deep in his rear areas, and areas which may be most profitably occupied by an attacking enemy.

It is with the deep support target, however, that we are concerned: those targets beyond the zone of maneuver of front-line friendly and enemy units. They are selected to create maximum destruction and chaos in the defender's rear areas. Such targets will probably be large concentrations of enemy reserves massing for an attack, elimination of enemy command and control agencies, and the destruction of such installations as airfields, rocket-launching sites, and ammunition-storage areas. The importance of such targets cannot be overemphasized; they are a vital part of the enemy's power. Destruction of these targets, while not having an immediate effect on the battle, would deny the enemy supplies and reinforcements necessary for his continuance of combat operations. These targets, if destroyed, would isolate the battlefield and burst the pipeline of men and equipment.

LET'S now consider the second of our elements: the airborne unit. The airborne force has established itself as

an extremely effective striking force because it capitalizes on the speed and flexibility of air power combined with the ability of land power to seize and occupy terrain. Usually, airborne forces operate when early surface link-up with friendly forces is contemplated. Their operations can include independent type missions in which seizure of an airhead is effected with no immediate surface logistical support. Raids and special type operations, such as assistance to partisan and guerrilla forces, are well within the capabilities of airborne forces.

Along with airborne's ability to strike deep objectives, there exist some serious disadvantages. These are its extreme vulnerability during landing and assembly, the absence of heavy artillery and equipment at the airhead, shortage of friendly armor, and the restrictive effect of bad weather. The presence of friendly armor in the later phases of the airhead is mandatory. These disadvantages make it necessary to provide a greater preponderance of force in an airborne operation than in a similar normal land operation. Remembering our great need for conserving manpower, this creates a definite problem.

Our consideration of atomic weapons and airborne units shows us that both have limitations. Each is powerful alone, but not quite powerful enough to be decisive against the type of targets we have discussed. But together they are an unbeatable combination, for each complements the other.

If the atomic weapon is selected properly and used properly, the immediate threat of annihilation is removed from the airborne attack. Despite any protective action he may take, the enemy will suffer heavy casualties. The shock effect of the atomic explosion will make temporarily ineffective a large proportion of his forces that may have escaped physical injury. This effect may not last long, but it will be long enough to allow the airborne to regroup and reorganize after their landing, whether by parachute or assault aircraft.

To fully capitalize on the effects, infantry must be placed in the target area minutes after blast

Such an airborne assault extends the effect of the atomic explosion over time and space.

IT is obviously important that the two elements of the team be carefully coordinated to work together in harmony. Success of the atomic-airborne team depends on careful planning and training.

The target for the team will be deep in the enemy's rear. It will be one that is important and will be selected with a view to size, distance from the main force, and vulnerability to attack by the combination.

In planning the atomic-airborne attack, provisions must be made to prepare the way for the link-up. Strong enemy forces between the airborne objective and the link-up force may be eliminated by the atomic attack, and thus actually provide a safe corridor through which friendly forces may pass. This link-up force includes vital armor and engineer reinforcements. The availability of atomic attack extends very considerably the safe distance between the two forces.

The ability of the airborne unit of today to cope with enemy armor is greatly enhanced by such antitank weapons as the M56 SPAT gun 90mm, and the 106mm recoilless rifle mounted on the mechanical mule, and the new missile and rockets.

Timing in an operation of this nature is of paramount importance, and intelligence cannot be underestimated. In order to exploit the atomic weapon fully, we must have troops on the ground before the enemy has recovered from the tremendous shock of the weapon.

SURPRISE in this type of operation is mandatory. In order to prevent the enemy's taking countermeasures, such as dispersal of his forces and other massive measures, secrecy and surprise must be attained. In rear areas deep behind the lines, it is doubtful that enemy forces will spend their time in well-constructed holes with overhead cover. Thus, we have a good chance of catching them above the ground in great strength.

I firmly believe that the atomic-airborne team is a solution to the successful seizure of the enemy's essential rear area.

To prepare for such coordinated action, all our Army combat units—airborne and standard—should be thoroughly indoctrinated in the use of the atomic weapon as an instrument of fire support. Problems involving these tactics should be included even at the platoon level. We should provide opportunities for airborne forces and atomic delivery agencies to obtain an understanding of the role of each other and thus create the essential team spirit. One way to do this is to have airborne units participate in every atomic-bomb test as part of a tactical problem.

The present doctrine of airborne operations should include the exploitation of deep atomic strikes as one of the *primary* missions of airborne units.

WHAT ABOUT INTERSERVICE TRANSFERS?

LIEUTENANT WILLIAM V. KENNEDY

IN the interests of unification, some soldiers, civilian leaders and Congressmen have advocated a system of interservice transfer. The pros and cons are many, but it may be more helpful to know just what is possible under existing regulations.

The truth is that interservice transfer isn't easy. If you are an officer on active duty, in any branch but the Medical and Dental Corps, you have only one choice: to resign, or be released from active service. Once free and clear from present abligations, you may seek an appointment as an officer in one of the sister services.

Even if you succeed in returning to active duty in your new service—an unlikely occurrence under present conditions—you will have lost rank, time and money.

Only in the reserves can a general-duty officer accomplish an interservice transfer without causing harm to his career.

An enlisted man can vary his service by enlisting in a different armed force upon completion of his present enlistment. He must be prepared, however, to sacrifice from one to five stripes in the process, depending upon his present rank and the service into which he wishes to transfer.

For an officer or an enlisted man to compile a varied background of service in two or more of the United States armed forces and a foreign army, navy or air force as well is, of course, a fairly common occurrence,

This writer once served under a colonel who had been a petty officer in the United States Navy, a second lieutenant in the United States Marine Corps Reserve, and a second lieutenant in the Guardia Nacional of Nicaragua, all at the same time. Later, the same officer served as a pilot in both the Royal Canadian Air Force and the Royal Air Force before winding up back home in the United States Air Force.

A career such as this results usually from a combination of war and a colorful character who finds adventure a far more desirable objective than security or advancement. It is not well suited to the operation of a stable military personnel program.

The National Security Act of 1947 provided authority for the transfer of officers between the Army and the Air Force. This was aimed at providing the most flexible policy possible during the early phases of the Air Force's emergence as a separate service. The transfer period ended in July 1950. After that all doors closed tight.

The transfer of medical and dental officers among all the services was allowed to continue due to the critical shortage of such officers and the difficulty of correcting the shortage even by the most intensive training programs.

Suggestions by the Department of Defense for interservice transfer authority are concerned most of all with the exchange of specialists. There is also, however, a definite requirement for the transfer of general-duty officers.

Requests received at Department of the Army and Congressional levels indicate that there are several groups of officers, in addition to "critical list" technicians, who desire transfer from one service to another. One of these groups consisted of nonrated Air Force officers who are anxious to transfer into the Army in the belief that the chances of advancement in their own service are slim. Other groups include Marine Corps pilots desiring transfer into Army aviation and a number of West Point and Annapolis graduates who were not able to obtain the service of their choice upon graduation.

While such transfers are all but impossible for an officer on active duty, they can be accomplished without loss of rank and service within the reserve components.

The Armed Forces Reserve Act provides that, in certain circumstances, an officer not on active duty can be transferred from one service to another without loss of rank or time in grade and with no break in service.

In order to qualify, the officer desiring transfer must have a skill that is in excess in his own service but in demand in the service to which he wishes to transfer. The Reserve Act also provides that an officer who would be placed under a hardship to drill with an organized unit of his own service may be transferred to a nearby organized reserve unit of another service, provided a vacancy exists.

The active-duty officer can take advantage of interservice transfer under the Armed Forces Reserve Act only by obtaining release to inactive status and applying for transfer to the reserve of a sister service. He must, of course, meet the qualifications of the Reserve Act in regard to specialty shortage or hardship.

The officer who resigns in order to obtain release from active service must seek an original appointment in the reserve component of his choice. In such circumstances he would stand to lose time in grade, and possibly rank if he had held a higher rank on active duty than the reserve unit could accommodate.

The enlisted man who seeks to serve in two or more of the armed forces faces perhaps the most severe penalties of all. Even if he enlists in a new service the day after discharge, the enlisted man in almost every instance takes an automatic reduction in rank.

This reduction is most severe in the Marine Corps, which enlists everyone from Navy chiefs to Air Force first sergeants in the grade of private first class and, to make it worse, packs most of them off to boot camp.

Enlistment in the Army or Air Force would generally cost the sailor or marine a reduction of one grade, if the enlistment was within ninety days of discharge. Beyond ninety days a more severe reduction in rank takes effect. The Navy accepts Army, Air Force and Marine Corps master sergeants in the

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grade of seaman first class. Men with special skills are treated a little better by all the services. The Marines, for example, will excuse the new PFC from boot camp if he is highly skilled.

In addition to the material losses suffered through reenlistment in another service, the enlisted man sometimes incurs a psychological handicap. One Navy recruiter stated that he and many other recruiters "don't like to see men like that come along because we regard them as drifters."

As with officers, it is somewhat easier for an enlisted man to transfer from one reserve component to another while in none-active duty status.

The establishment of an equitable system of interservice transfers through adoption of the proposed Department of Defense legislation would increase the exchange of personnel and information between and among the services. It would also provide a wider horizon for officers anxious to expand their knowledge of the art of war in all its aspects and in all its elements.

Once a system of interservice transfers is approved, the need will arise for the retraining of newly transferred personnel in the organization, traditions, equipment and tactical doctrine of their new service. The lack of a basic reorientation course is felt keenly by those making interservice transfers at present. The basic principles of leadership, organization, discipline and command are the same in any military organization, but the technical differences between any two services can be enormous. This applies even to language. Identical slang or technical expressions can have entirely different meanings in different branches of the service.

The desire to transfer into another service because the grass looks greener over there can be a healthy one, if it is kept within the proper bounds and doesn't become a haven for "drifters." Obviously, a man with a poor record shouldn't be able to run away from it by transferring to another service every time his record begins to flash a red warning light in the eyes of his superiors.

Lieutenant William V. Kennedy, Armor-NGUS, *recently attended a course at The Armor School. Before that he had served two years of active duty in the USAF with SAC and as a member of the Air National Guard. He lives near Harrisburg, Pa.*

VICTORY THROUGH WHEEL POWER

WHEEL MARSHAL VON TANKENBERG

MAN is naturally a land animal and lives off the land. He is out of his element in the air or on the sea which to him are merely transportation media. Every aircraft must land and every ship must make port, neither can operate without a land base.

The device which gives man his mobility on land is the wheel, whether driven by beast of burden, engine or man himself. Since superior mobility on land enables man to win land battles, the wheel is the key to the success of any military effort. Thus, the only element of our armed forces that is really essential is a Wheel Force.

This principle is not sufficiently recognized by those who control the military destiny of our country. This country cannot afford a large Wheel Force, Sea Force and Air Force. We must therefore concentrate on the development of Wheel Power, since Wheel Power alone can win the most important battle, the battle for the life supporting materials of the earth. The contests for control of the large useless expanses of air and ocean are important only as auxiliaries to the main battle on the ground. Highly mobile wheel forces can penetrate enemy defenses, surround large areas of his territory and thereby capture his troops, arms, cities, industrial centers, sea ports and air bases. With proper equipment this can be done so quickly that the captured property is virtually undamaged and still useful for our own purposes. This is true victory in contrast to the Pyrrhic victories achieved by aerial bombardment in which the cost of both the destruction and the rehabilitation are chiefly paid by the victorious nation.

THE reason that wheel power has not been properly exploited by our armed forces is that the National Defense Department is dominated by foot-minded generals, fish-headed admirals, and air-brained airmen. Wheel Power is now scattered throughout our National Defense Department. All services are permitted to own and operate wheeled vehicles—Army, Navy, Air Force and Marines, yes, even Wacs and Waves—Wafs do not, since the Air Force being young and susceptible to feminine charm, assigns handsome young airmen to chauffeur their sisters in uniform, or so I have been told. This shameful dispersion of our Wheel Power dilutes it so that we are not receiving anywhere near full value on the dollar expended for these wheel-borne vehicles, although in themselves they are very economical. In order to correct this, the Department of National Defense should be reorganized into three services.

The Wheel Force. The dominant element of this force is the strategic Wheel Force whose mission is to send out high-speed ground task forces to encircle and capture the enemy's armies and industrial centers. It will be equipped with atomic powered super tanks capable of wiping out any opposition with rapid-fire atomic artillery and invulnerable to all antitank weapons. The super tank is capable of carrying more weapons farther, faster than any other vehicle in the world. With its radar-controlled gun director it will be able to pin point targets at ranges of forty miles while traveling over the roughest terrain at ninety miles an hour in bad weather. Natural or man-made obstacles will not slow down this battleship of the land and it will be able to operate unsupported behind enemy lines with impunity for weeks at a time. Naturally a small Tactical Wheel Force must be provided for the support of walking troops who will guard the bases from which the Strategic Wheel Force operates. The Wheel Force will control the research, development, procurement and operation of *all* wheel-borne vehicles including aircraft while taking off and landing. This will permit proper concentration of our Wheel Power so that it can effectively accomplish its mission.

The Sea Force. This force shall transport our Wheel Forces overseas when necessary and insure their safety during such transportation. It shall prevent the enemy from deploying its armies by sea routes. Materials for this force

shall be provided after the needs of the Wheel Force are met.

The Air Force. This force shall support the Wheel Force in its combat and logistic operations. It shall prevent insofar as possible enemy interference by air with the operations of the Wheel Force. Material shall be provided for this force on the same basis as the Sea Force.

WHEN this reorganization has taken place, the United States need no longer fear the military might of any foreign power or bankruptcy at home. Wheel power integrated into a single force under the leadership of a wheel-minded leader will not only be a greater deterrent to a possible aggressor, but will not cost nearly as much as the so-called balanced force with its tremendously expensive aircraft and ships. Our real strength lies in the fact that we are not only are the greatest industrial nation on earth but the most wheel-minded nation on earth. We must remember that a war is not won until our tanks and jeeps are rolling through the streets of the enemy capital. Keep 'em rolling!

***Wheel Marshal Von Tankenberg** is less at sea than some may think, though he is, surprise, a Captain, USN, and presently on duty not far from the top of the Department of the Navy bridge.*

DON'T POLISH THE APPLE—PEEL IT!

CAPTAIN GEORGE T. CAHILL, JR.

SELLING reenlistment is tougher than selling first enlistments because you have to *resell* a person who not only has used, but is still using, your product. But how do you go about selling those who have tried and do not like your product? Seldom does a modern business encounter such a publicity and public-relations problem. Unfortunately for us, the majority of buyers in the reenlistment market dislike our product.

In trying to convince a user of our product beware of the indiscriminate use of superlatives to describe a general benefit, condition, or service since your target may be able to show you that things are not up to your representations. The description in our prospectus is only as good as the truthfulness of its statements. One ambiguous or misleading word or statement can nullify the entire effort, because the reader knows as much about your product as you do. Consequently, he figures that if one statement is incorrect, he can believe little of the rest.

I do not mean to imply that we resort to untruths in the literature we use to induce reenlistments. However, in seeking direct enlistment, our materials use superlatives to describe glittering generalities. For example, we say, "Opportunity for World Travel." Imagine the reaction to that of a soldier coming up for his first reenlistment who has just returned from sixteen months in Korea! While it is true, we shouldn't use it without qualification in the reenlistment program. We might qualify "world travel" by saying something like this: "By the time you retire, you will have had an opportunity to visit many foreign countries. The Army can't guarantee that you'll like *all* your overseas assignments, but one thing is for sure: If *you* didn't like your last overseas assignment, you probably had plenty of company."

No soldier can question the truth of such a statement, and he might conclude that the worst is over for him.

Not everything about the Army is perfect, but we must not ignore unpleasant facts for they may be the very things that influence a soldier against reenlisting. In reenlistment materials and during interviews, both good and bad things should be thoroughly discussed, in plain soldier language. We must explain why the hardships exist and what is being done to eliminate or mitigrate them.

We must tone down the flashy type of advertising in explaining the merits of Army service, leading our prospect through progressive thought processes in a simple, dignified, conversational and commonsense manner. The glamor treatment used in the high-school materials must be toned down. After all, our man or woman has matured through use of our product to judge its benefits and shortcomings. It is better to point out aspects of our product they may never have considered.

The re-up bonus has proven a stimulus to the reenlistment effort, and we can make it more attractive by translating into material goods. For example, the worth of the corporal's $842.40 for his first six-year hitch looks better when likened to the down payment on a car or a home, a television set, or new clothes. That holds for the oldtimer too, and usually rings the bell with the Army wife.

Getting that first reenlistment is the toughest sale to make, for each subsequent one becomes progressively less difficult. But we must not rest on our laurels because of the healthy percentage of reenlistments among those with more than six years' service. To do so would invite a serious drop in future reenlistments among soldiers of long service, even though with them we have more selling points to use.

Few patriots are developed in peacetime. I do not mean that during peacetime patriotism does not exist, but while it is an integral part of our everyday way of life, it is not readily apparent. Men solicited for Army service—and even some in service—ask the same question as their civilian counterparts: "What's in it for me?" We want to get and keep the type of man who seeks advancement, who wants to improve his station in life, and who welcomes the opportunity of assuring security for himself and his family through honorable service.

We are doing our best to make the soldier reenlistment conscious, and we must keep the thought ever in his mind. His decision is not made overnight, any more than he buys a home or a car through a snap decision. The prospect must be motivated by progressive mind conditioning, a process that should become relentless once a man enters the Army. The message must be as regular as rations, and served with as much variety as is possible. Publicity materials in themselves are seldom so dynamic that a man will rush to sign on the dotted line. The clincher is the personal presentation and interview by recruiters *and* commanders.

Captain George T. Cahill, Jr., Adjutant General's Corps, *was editorial director of the Recruiting Publicity Center in 1954-55 and is now Military Personnel Procurement Officer of ARAACOM.*

Irons in the Fire

Helicopter Instrumentation

In an Office of Naval Research-sponsored contract, Bell Aircraft Corp. engineers are attempting to find out exactly what information a pilot needs to operate a helicopter under all conditions and how this information can best be presented to him. Owen Q. Niehaus, Bell's project engineer, calls it "fitting the machine to the man." Because instruments in helicopters are "hand-me-downs" from fixed-wing aircraft, they do not give the helicopter pilot all the information he needs to take full advantage of the maneuverability of whirlybirds, Niehaus explained.

C-130 Passes Tests

Tests have been made of the ability of Lockheed's propjet C-130 Hercules transport to take off and land on short, unimproved airstrips in combat areas. The transport has four 20.00-20 tandem tires of a relatively low-pressure type that "float" on soft ground. The forward tires plough and compact the ground, making a smoother path for the rear wheels. The C-130 has a top speed of more than 370 mph, but also performs efficiently at low altitudes and speeds.

Tests also have demonstrated the ability of the C-130 to deliver troops and supplies by parachute into combat zones. A 2½-ton truck is parachuted out of it during Army tests.

The C-130 can carry 20 tons of equipment, or airlift 92 fully-equipped combat troops, or serve as a hospital ship capable of evacuating 70 litter patients. It can be used either as an all-cargo ship or a personnel plane. On two occasions during the tests, the medium transport carried both cargo and personnel. A platform was dropped from the ramp, followed immediately by five paratroopers—also from the ramp. On another flight, the aircraft dropped a 22,235-pound Ontos on its first pass over the drop zone, and then dropped personnel from the same plane on a second pass.

The shakedown flights showed up some operational "bugs" which will be corrected, Lockheed officials said.

C-130 takes off from sod runway

Two-and-one-half-ton truck dropped from C-130

Investment Manual

The Armed Forces Department of Harris, Upham & Company, 1505 H Street NW, Washington 5, D. C., nationwide investment brokerage firm with 35 offices coast to coast, and members of the New York Stock Exchange, issued the *Military Investment Manual*. The 12-page booklet is designed, according to Gen. John E. Dahlquist, Ret., former CONARC commander and now director of Harris, Upham's Armed Forces Department, "to acquaint servicemen the world over with stock market operations, different investment mediums, and the real values of long-term investing for members of the armed forces." General Dahlquist said that "the services of this new department have generated inquiries from officers and enlisted personnel in every branch of the service from all parts of the world."

Surveillance Radar

Front view of AN/PPS-4 radar set

An extremely light, portable radar set (AN/PPS-4) built by Sperry Gyroscope Co., working with Signal Corps Engineering Laboratories and Army Electronics Proving Ground, provides mobile forces with local battle-area surveillance of enemy movements during smoke, fog, or darkness. Lightness and ruggedness were attained by eliminating a cathode-ray tube and substituting audible signals. These sounds are distinctive when contact is made with a vehicle or soldier.

Already field-tested, the set is self-contained in a drum-shaped metal case 14 inches high and 14 inches long. It uses low power from a lightweight motor generator that is easily carried by one of a two-man observation team. Weight of set and generator is about 85 pounds.

Rear view of PPS-4

THE MONTH'S BOOKS

History of American Artillery

THE SOUND OF THE GUNS: The Story of American Artillery from the Ancient and Honorable Company to the Atomic Cannon and Guided Missile
By Fairfax Downey
David McKay Company, 1956
$5.50

Reviewed by
MAJ. GEN. H. W. BLAKELEY

Fairfax Downey is a prolific writer and a former redleg. He has written history, biography, humor, juveniles, and light verse, but this reviewer would guess that he has particularly enjoyed the making of this book and will take especial pride in it. As the subtitle indicates, it's the history of American artillery, and is, of course, written for the general reader rather than the professional soldier, but every gunner will find in this book incidents which will add to his *esprit de corps*.

The American artillery's first battle performance was not one of which it can be proud. Three brass tubes, stolen from a British-guarded Boston "gunhouse," had been fitted with carriages by Yankee carpenters and wheelwrights. "Those three guns, with a fourth shortly added," says the author, "founded the American artillery." By the time the battle of Bunker Hill started, the artillery had grown to three companies, but the conflict was "a day of glory for the American infantry, a black one for the artillery." Two out of the three companies were "deeply disgraced" and their captains court-martialed. Incidentally, two of the original guns, named *Hancock* and *Adams*, are today enshrined in the Bunker Hill monument.

Under Washington, the artillery quickly established itself. He appointed Henry Knox as America's first chief of artillery. Within three years Washington awarded the artillery one of its earliest citations: "It is with peculiar pleasure that the Commander in Chief can inform General Knox and the Officers of the Artillery that the enemy has done them the justice to acknowledge that no Artillery could be better served than ours."

Mr. Downey covers the highlights of the artillery's part in our military history. The stories of famous batteries, historical guns, and legendary men and horses—and women—are told. Again the adverse effect on morale of the War Department's shortsighted changes in designations of old batteries is evident. It would have been a welcome addition to the book if some of the more famous batteries had been traced down to their present designations.

Of the artillery's World War II participation, Mr. Downey says that the "vast cyclorama" of that war necessarily limits his chronicle to comparatively few of its artillery actions. This is regrettable, but authors have to remember the costs of book production these days and limit their wordage.

Artillerymen will probably feel that the American advances in gunnery techniques —particularly in lateral observation, air observation, and fire direction—are somewhat sketchily presented, but the general reader has to be considered in discussing esoteric matters. The development and experiences of the antiaircraft artillery also gets too brief mention, and there are some errors in other matters. For example: for the Normandy invasion, artillery battalions did not "board DUKW's," but, generally, LCTs; and the invasion was not postponed a week because of bad weather, but one day.

It is part of a reviewer's function, particularly in a professional journal, to mention inaccuracies, but it is unforgivable to let comments on minor shortcomings distort the picture of the over-all worth of a book. This is a book that every artilleryman should read. He will acquire invaluable background knowledge of, and pride in, his arm. It wouldn't do the doughboys any harm to read it either. As Jomini said many years ago, "As a general rule, the maxim of marching to the sound of the guns is a wise one."

THE MONTH'S REVIEWERS

Maj. Gen. Harold W. Blakeley, USA, retired, has been an artilleryman since 1917. During World War II he commanded the 4th Infantry Division.

Emilie M. Rigg contributed "Only Uncertainty is Certain" in the September 1954 issue. She is the wife of Lt. Col. Robert B. Rigg, and has lived at several posts in CONUS, in Manchuria, China and Germany. The Riggs are now stationed in the Washington area.

Col. Harold D. Kehm, *Artillery,* retired, is also a frequent reviewer. During World War II he was G2 of Ninth Army.

Brig. Gen. Charles S. Harris, USA, retired, a Contributing Editor of *ARMY,* was artillery engineer on Corregidor early in his service. During World War II he commanded the AAA in Alaska and that of Tenth Army on Okinawa.

Harold Silverstein, Special Assistant to the Chief Signal Officer, served in World War II as an Armor and Transportation Corps officer.

Robert J. Schubach earned his Master's degree in Accounting from the University of Chicago. He is Administrative Officer in the Developments and Training Branch of the Army Comptroller's Office.

Col. R. Ernest Dupuy, *Arty,* retired, is one of the Army's foremost historians. During 1956 he published two books: *The Military Heritage of America* (with Col. T. N. Dupuy) and *A Compact History of the United States Army.*

Brig. Gen. Donald Armstrong, USA, retired, a frequent reviewer, and Contributing Editor to *ARMY,* is a former Commandant of the Industrial College of the Armed Forces.

Guide for You

THE COMPLETE GUIDE FOR THE SERVICEMAN'S WIFE
By Elizabeth Land and Lt. Col. Carroll V. Glines, Jr., USAF
Houghton Mifflin Company, 1956
466 Pages; Index; $5.00

Reviewed by
EMILIE M. RIGG

If you are a service wife, do you understand why it is forbidden to whistle on board ship? Or what the "dogwatch" means? Have you learned what the Government has done to provide housing on Guam free from mildew? And what is the normal tour of duty in Timbuktu? Do you know in whose name the family car should be registered? Or what document has been called "the most potentially dangerous document ever devised by man?"

Here is a book for service wives that covers everything. Its purpose is to present the most comprehensive picture possible to the wives of servicemen. It is especially designed to help those who are temporarily involved, who have to learn the ropes in a hurry. For those short-timers who represent fifty per cent of service women today, this book is a must.

The authors have accomplished their purpose of presenting vital topics of interest to all service wives and arranging them in pleasant reading form in one great handbook.

Even to an oldtimer there are bits of news in this volume. For instance, do

you know about National Service Real Estate? It has not yet become nationwide, but will be valuable to many who would like to have an answer to the sometimes harrowing PCS question: Where do we find a roof to put over our heads?

It seems that by writing to this real-estate service and presenting facts concerning size of family and needs in the matter of housing, a happy home can be waiting when you arrive at your new station—providing your location is in an area where this service operates.

For the Army wife, this book contains information about her sister services which can broaden her understanding of other branches.

The descriptions of "station reports" at home and abroad are mostly up to date. Local situations can alter a generalized statement. Even while a book is being printed, certain changes can make a statement erroneous.

Much credit is due the authors for their thorough research. Colonel Glines conducted a course for service wives at the University of Oklahoma, a course so enthusiastically received that it sparked the idea for a book. Elizabeth Land wrote an article for *The Saturday Evening Post* on the course. Pursuing questions and penetrating all branches of the armed forces, they came up with the answers in detail. The collaboration resulted in giving you all the information you'll ever need to know.

Beyond Clausewitz?

MEN IN ARMS
By R. A. Preston, S. F. Wise and H. O. Werner
Frederick A. Praeger, Inc., 1956
376 Pages; Illustrated; Maps; Index; $6.50

Reviewed by
COL. HAROLD D. KEHM

The interrelationship of warfare and society in the West is the theme of this interesting book written by three who served in World War II.

The authors illustrate their theme in a historical survey covering the period from the rise of Greek civilization to the Cold War of today. In their own words, their book is "an attempt to relate the history of warfare to the history of society in the West and to trace their effects on one another."

There is nothing new or startling in the concept that warfare and social development are interrelated. In modern military literature Clausewitz expressed this truism most strikingly in his famous comment: "War is nothing else than a continuation of political transactions intermingled with different means." (They are careful to point out that by this expression Clausewitz meant to point out that military affairs should be subordinated to political control rather than the reverse, as it is usually interpreted.) However, our authors actually go beyond Clausewitz in that they show that not only politics—even in the broad sense in which Clausewitz used it—but also economics, psychology, sociology, science, and religion, are all interrelated with the development of warfare.

The backgrounds of the authors give them a good basis for the vast task which they undertake. The book is well written in spite of the fact that it is a very brief treatment of a long and complex subject. With a few notable exceptions, neither the maps nor the illustrations add much to the text. The bibliography is useful.

While their basic theme is not new, the authors have produced a new kind of military history. It is one in which military operations receive only the briefest mention and much more space is devoted to other factors.

Illustrations of the interrelationships include the influence of regional economic and political considerations on American strategy in the War of 1812 and the fact that religious, humanitarian and sociological forces combined to work toward the limitation of war after the Napoleonic period. The authors also show that the Royal Navy and England's world-wide chain of bases enabled her politicians to maintain *Pax Britannica* and to establish and retain a vast colonial empire as well as to assure safe access to vast markets for her expanding industry.

Their treatment of the Napoleonic era merits special attention. The authors conclude that the explanation of Napoleon's meteoric rise lies in the revolutionary spirit of the time. They attribute his success to three factors: his employment of mass armies; his use of the products of the Industrial Revolution; and the great stress he laid on the indoctrination of his troops. They hold that these same factors "cast him down again." In this it seems they have oversimplified. Surely the Industrial Revolution was "neutral" and the use of mass armies was determined primarily by political and economic conditions. It would seem more logical to say that initially Napoleon saw and seized an opportunity to make economic and sociological factors serve a military purpose, and that he used these in consonance with the social order of his day. However, later he seemed to misread such developments, both in his own empire and in other nations, and hence to make errors which led to his downfall. The factors did not change so much in the short span of his career. It was the use made of them which changed the picture. While the authors pay tribute to Napoleon's military skill, they do not give proper weight to his capacity as an administrator and his political vision. The results of these abilities are apparent to

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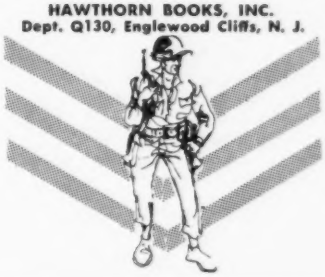

Selected Check List of the Month's Books

This run-down of some of the books received for review during the month preceding our deadline is to give our readers who like to follow current literature a monthly check list of the most important, useful and potentially popular books. Full reviews of some of these books will appear in this or subsequent issues. Any of these titles may be purchased through the Combat Forces Book Service. See page 96 for order coupon and a complete listing of Selected Books for Military Readers.

ARMS AND MEN: A Study of American Military History. By Walter Millis. G. P. Putnam's Sons, 1956. 382 Pages; Index; $5.75. A penetrating study by a military writer and commentator who isn't blinded by Blue Yonder propaganda.

BATTLES AND LEADERS OF THE CIVIL WAR. Selected and edited by Ned Bradford. Appleton-Century-Crofts, 1956. 626 Pages; Illustrated; Index; $8.95. The famous four-volume set edited to one thick, door-stopping tome. Ned Bradford, who did the cutting, is editor in chief of Little, Brown & Company, and a noted Civil War scholar. The result is a book that suffers somewhat as a historical reference, but gains much as a readable group of selections that impart the feel of the Civil War.

THE BATTLES THAT CHANGED HISTORY. By Fletcher Pratt. Hanover House, 1956. 348 Pages; Maps; Index; $4.95. The late Fletcher Pratt was ever prolific and sometimes controversial. His choice of sixteen battles is far different from those chosen by Creasy and Murray; this alone could be the source of many a long argument around the Officers' Club bar. His style, in this posthumous volume, is more acid than light. Probably not an important book in the broad field of military literature, but a fresh approach and a conversation piece for military scholars.

THE CIVIL WAR. Volume I: *The American Iliad,* by Otto Eisenschiml and Ralph Newman. 719 Pages; Maps; Index. Volume II: *The Picture Chronicle.* By Ralph Newman and E. B. Long. 240 Pages; Illustrated; Index; Boxed set, $10.00. A mosaic of reporting on our great national conflict, culled from eyewitness accounts, personal letters and diaries, and extracts from contemporary newspapers. The Civil War as seen at the time by great and small on both sides, linked into a running narrative. Some of the best of Brady's photographs, together with a detailed chronology and thumbnail biographies. Altogether, a boon for *aficionados.*

ESQUIRE DRINK BOOK. Edited by Frederick A. Birmingham. Harper & Brothers, 1956. 310 Pages; Illustrated; Index. $4.95. We have seen better bartenders' guides cheaper, but if you want to sound like a connoisseur of joy juice, curl up with this. History, comments, recipes.

THE FAR WESTERN FRONTIER, 1830-60. By Ray Allen Billington. Harper & Brothers, 1956. 324 Pages; Illustrated; Index; $5.00. Soldiers, cattlemen, farmers, Mormons, Texans, miners, trappers—Professor Billington writes of a romantic and exciting period in the history of the country. Interpretative history and scholarly, but readable.

I WAS CHAPLAIN ON THE FRANKLIN. By Rev. Joseph T. O'Callahan, S.J. The Macmillan Company, 1956. 153 Pages; $2.75. The only chaplain ever to be awarded the Medal of Honor tells an exciting tale of what happened aboard "the most damaged ship ever to reach port." A true thriller, told by a master.

JUNIOR LEADER'S FIELD NOTEBOOK. Military Service Publishing Company, 1956. 96 Pages; Illustrated; $2.00. Much useful information for the infantry small-unit leader, arranged in alphabetical order. But suppose you didn't remember that "Night Movement—Rules" was the way it appeared in the book? There is no substitute for an index, and the book doesn't have one.

LONG REMEMBER. By MacKinlay Kantor. Coward-McCann, 1956. 411 Pages; $4.95. **AROUSE AND BEWARE.** By MacKinlay Kantor. Coward-McCann, 1956. 332 Pages; $3.95. *Long Remember* was recommended to the reviewer as *the* outstanding example of Civil War fiction back in 1941 when he first reported for active duty. Reading this book (first issued in 1934) led to a search for other Kantor titles, including *Arouse and Beware* (1936). These two reissues, the result of the success of Kantor's *Andersonville,* belong in the libraries of all who found *Andersonville* as advertised.

MEN OF THE WESTERN WATERS. By Dale Van Every. Houghton Mifflin Company, 1956. 248 Pages; Illustrated; Index; $4.00. The period 1781-94, between the battles of Yorktown and Fallen Timbers, was one of many critical times in the nation's history, but one that has been neglected by the historians. Mr. Van Every, who has written both fiction and history, does the period justice both in scholarship and style. As is often the case, the map is not quite adequate. Eighteen contemporary illustrations add to the physical appearance of the volume.

MY CONFESSION. By Samuel E. Chamberlain. Harper & Brothers, 1956. 302 Pages; Illustrated; $6.00. The full text of the eyewitness story of the Mexican War that appeared in part in *Life.* The author, seventeen at the beginning of the war, was either the prototype of the swashbuckling heroes of American fiction or a complete liar. Either way, this is exciting reading, and fairly faithful to the historical realities.

NEVER A SHOT IN ANGER. By Col. Barney Oldfield, USAF. Duell, Sloan & Pearce, 1956. 334 Pages; $5.00. A breezily written, often nostalgic personal reminiscence of the PRO side of the war in Europe. Irreverent in spots, always interesting, but on a subject probably aimed more at editors than combat soldiers.

THE OLD WEST SPEAKS. By Howard R. Driggs. Prentice-Hall, 1956. 220 Pages; Illustrated; Index; $10.00. This is a volume made to take a prominent place in the libraries of those interested in bookmaking as well as history. Large type, fine typography, and 37 color plates, all reproductions of the famous paintings of William Henry Jackson. Definitely a luxury, but very nice to give or receive.

PENSION AND RETIREMENT RIGHTS. By Col. Stephen F. Tillman, USAR. Published by the Author. 53 Pages; $1.00. A new edition of Steve Tillman's by now standard work. Not as complete as some in the field, but of unchallengeable accuracy.

PORK CHOP HILL: The American Fighting Man in Action—Korea, Spring 1953. By Brig. Gen. S. L. A. Marshall. William Morrow & Company, 1956. 315 Pages; Maps; Index; $5.00. A worthy successor to *The River and the Gauntlet.* General Marshall has a rare talent of combining the military realities with moving personal accounts. To be reviewed at length in an early issue of *ARMY.*

POSTED MISSING: The Story of Ships Lost Without Trace in Recent Years. By Alan Villiers. Charles Scribner's Sons, 1956. 310 Pages; Illustrated; Index; $4.75. Ships still vanish, without messages and without trace, even in these days of electronic miracles. Mr. Villiers, an expert at sea stories, makes this read like fiction.

REBEL BOAST. By Manly Wade Wellman. Henry Holt & Company, 1956. 317 Pages; Illustrated; Index; $3.95. The Civil War as seen by the enlisted man and the junior officer, reconstructed from the letters and diaries of a group of kinsmen from North Carolina. "First at Bethel—last at Appomattox" was the boast of those who lived to experience the end of the war. A readable result of skillful research.

TWENTY MILLION TONS UNDER THE SEA. By Rear Admiral Daniel V. Gallery. Henry Regnery Company, 1956. 344 Pages; Illustrated; $5.00. Admiral Gallery has a chatty style, well studded with wry asides, that makes his books fun to read. Most of the subs in the Atlantic were German, and this is largely the story of the German triumphs early in the war, and the British and American counter effort.

U. S. ARMY IN WORLD WAR II. The Technical Services. The Quartermaster Corps: Operations in the War Against Japan. By Alvin P. Stauffer. Office of the Chief of Military History, 1956. 358 Pages; Illustrated; Index; $4.00. The quartermasters in the Pacific were at the thin end of the supply line for more reasons than one, and their job, especially in the early days of World War II, was one that brought more frustration than satisfaction. The various QMs found themselves growing crops, directing fishing fleets, and slaughtering carabao—none of these activities in the FMs or TMs. The excellence of research and presentation is normal in the official history series.

the most casual student of French government and society.

In commenting on the current Cold War the authors assert that a major portion of the world is living under the principle of the nation in arms. Then, in the last sentence of the book, they make the ominous statement that "the fabric of the democratic state will be increasingly subject to the stresses and strains which the organization of man power and resources for war purposes has always entailed."

Readers will probably want to quarrel with these and other conclusions developed in this book. However, both the military and the civilian reader will find them stimulating and challenging. The challenge stems from the fact that the authors present the facts of history as they see them. They make no pretense of establishing rules and principles to be used by military and political leaders and policy-makers to guide them in the development of lines of action which properly balance the great number of factors involved in such matters. The reader is therefore constantly wondering whether such rules or principles can be developed. The authors summarize the principles of war in their introduction, but they do not do this with the idea of suggesting that these principles are appropriate for use in the planning and conduct of national affairs. Parenthetically, there are good reasons for thinking that this is in fact the case. One may venture the supposition that a true egghead will some day produce guide lines for this purpose. Until they are developed, it will be necessary for leaders and planners to develop their judgment and skill by experience and by the study of the history of these interrelationships. This book can be very useful in the achievement of that end.

Leaders in Life Size

PHILIPPINE CAMPAIGNS
By Lt. Col. Uldarico S. Baclagon
Graphic House (Manila), 1952
388 Pages; cloth, $4.00; paper, $1.50
Maps; Index

Reviewed by
BRIG. GEN. C. S. HARRIS

Here from the pen of a tireless student of military history is the first integrated history of Philippine campaigns. It begins with the fateful amphibious attack by Magellan against the followers of Lapulapu on the shores of Mactan and closes with MacArthur's return and the liberation of the Philippines. The author hews well to the facts with a fortunate style and with clear analysis and appraisal of the tactics and strategy involved.

Dedicated to the Filipino soldier, the book is written primarily for Filipino students of their own history, but with remarkable effort toward objectivity. Americans who have served in peace or in war in the Islands will find it fascinating and instructive in the features of amphibious warfare.

The story of the early resistance to Spanish conquest is brief, but it does highlight the campaigns and successes of Legaspi, Tamblot's and Dagohoy's rebellions in Bohol and other spirited revolts against vassalage. The book also records the great extent to which Spain came to rely upon Filipino soldiers in her armed forces during her long régime.

The chapters on the Philippine Revolution, the American occupation of the Philippines and the Filipino-American war offer particular interest to Americans who would study the background of our intervention and its early progress. Dewey, Merritt, Lawton, Arthur MacArthur, Funston, Aguinaldo and other leaders of the period march across the pages in life size.

The major portion of the book is devoted to the campaigns in the Philippines during World War II: the Japanese landings and the drive to Manila, the defense and fall of Bataan, the defense and capture of Corregidor, the guerrilla resistance movements during the Japanese occupation, the liberation campaigns on Leyte-Samar, on Luzon, and on the Visayas and Mindanao. With access to splendid records of both the American and Japanese forces, the author is able to outline the plans of both sides, the stubborn resistance, the critical struggles, and the final accomplishments. For this portion the author provides well-marked maps. By and large it is a valuable contribution to the study of amphibious warfare.

Setting the Stage

U. S. ARMY IN WORLD WAR II: The Technical Services. The Signal Corps: The Emergency
By Dulany Terrett
Office of the Chief of Military History
383 Pages; Illustrated; Index; $3.50

Reviewed by
HAROLD SILVERSTEIN

The historical significance of the period just before a war often is overshadowed completely by the drama of actual conduct of the war. Yet the military lessons to be learned in this period are as urgent and important to victory as the applications of strategy and tactics in combat. Dr. Terrett very ably captures the significance of the state of readiness of the Army Signal Corps just prior to World War II. The student of military affairs will find much in common with the policies, decisions and leadership that contributed to and in some cases retarded effective signal support of the Army in the period up to December 1941 with a similar period just prior to the Korean conflict. Undoubtedly similar circumstances can be anticipated and acted upon prior to a future conflict.

Part I of this volume condenses the basic missions and events of the Signal Corps from its origin in 1860 to the pre-emergency period in 1939. One cannot help but be impressed with the manner in which a handful of officers kept abreast of the rapidly changing communications and electronics technology. The vitality and dedication of these officers and the key civilian engineers of the Signal Corps proved to be more than a match for the rigors of peacetime austerity.

Dr. Terrett aptly describes the basic organizational and jurisdictional struggles and pressures that beset the Signal Corps from its very inception. Prominent among these was the transfer of tactical communications from the Signal Corps, below division level, to the other using arms. Later, with the growth and importance of the Army Air Corps, came the question of control of aviation communications and electronics. The author describes these matters as dynamic issues which led to basic Signal Corps philosophy and policy of major concern to Chief Signal Officers. It is made abundantly clear to the reader that these jurisdictional matters are meaningful to the future combat organization and effectiveness of the Army.

It is understandable why the author gives the signal research and development effort and the attendant decisions on standardization and procurement of

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new equipment the lion's share of attention. The treatment of radar and frequency modulation communications typifies the internal struggles within the Signal Corps laboratories and the Office of the Chief Signal Officer as well as the issues between the other using arms and the Signal Corps. The eternal triangle of user, developer and producer in the equipment field is as typical as its namesake in the field of marital relations. The author's treatment of equipment may be overly technical at times; however, the reader will be irked even more by the prolific use of equipment nomenclature.

In Part II, on "the limited and unlimited emergencies," the pace quickens. The prospect of war is now compelling, and the Signal Corps is now making the jump from rags to riches. The decisions on development and procurement and the problems of getting industry started on the new lines of equipment make good reading. Concurrently, the build-up of personnel taxes the training system of the Signal Corps. The description of how the Officer Candidate Department of The Signal School was established by a few junior officers exemplifies the training problems and how they were overcome.

The author's effort to personalize the major decisions and actions in this period by name is commendable. Unquestionably, for all who are mentioned by name, many more are unsung, if now unknown heroes and goats, of the innumerable issues and fateful decisions that were made in this period.

Dr. Terrett does justice to this critical period and sets the stage for the story to follow from 7 December 1941.

Financial Management

ACCOUNTING IN THE FEDERAL GOVERNMENT
By Eric L. Kohler and Howard W. Wright
Prentice-Hall, Inc., 1956
291 Pages; Index; $5.75

Reviewed by
ROBERT J. SCHUBACH

Under the new financial management reforms, it is inevitable that every Army supervisor will be affected by financial management. Supervisors, therefore, might benefit a great deal from a quick briefing on the general purposes of these reforms and the private terminology of the financial specialists. This book furnishes such a briefing.

Since World War II numerous advances have been made in financial management techniques. Army accounting, which heretofore has been related only to Army financing, is now being related also to method of operation. This relation is accomplished largely through cost reporting on an accrual accounting basis. The reports beginning at posts, camps and stations go through all echelons to Congress.

The authors believe that ". . . the idea has been firmly established that the more realistic elements of financial management must be brought together and interrelated in the budget." The reforms serve as "policy-enforcing procedures" which invariably begin with ". . . a careful look into the future under some sort of planned action." The plan is then approved and the action monitored by a reporting and analysis system.

Although Kohler and Wright fully treat financial management's benefits to top management, they do not neglect its impact on the operating levels. They quote from a (1955) House Appropriations Committee subcommittee: ". . . it is [now] generally recognized that [expenditure] controls must ordinarily be extended through administrative devices down to a point in the organization where an official can reasonably be expected to be held directly accountable for specific actions." They add their own comment: "Financial planning and the carrying out of an approved operating program, at one time undisputed responsibilities of an agency's budget officer, are now responsibilities of executives." They tie accounting closely to the executive through the concept of "activity" which they define as "the smallest recognized operating unit where forward planning, responsibility, and accountability can be assigned to and assumed by a single individual." The activity "is a natural cost center and building block for financial statements."

Executives, in the authors' opinion, should use financial data in a sequence of planning, programming, budgeting, operating, accounting, analysis, and adjustments. In planning, tests of feasibility deal with costs, workload data, rates and limits of productivity. Programming fits requirements into the organization and determines timing and availability of men and materials. Budgeting projects "a financial plan for the ensuing year, consisting of work to be done in terms of activity, units, and costs of end products." Each succeeding period's operations follow the practical working model established by the budget. Accounting does more than fill in the blanks of this format; it provides comparisons and analyses to strengthen "what otherwise might be regarded as unsupportable conjecture."

Accounting in the Federal Government is a well-balanced book. The authors frankly point out the dangers in oversimplifications that often infest accounting practices. On the other hand, they are properly respectful of the usefulness of sound accounting techniques intelligently applied.

While it is true that the general idea of the new financial management may be easy to understand, yet the Army officer may at first encounter difficulties in applying it. The specialists who operate the systems, as the authors say, ". . . tend to employ a technical language having local rather than universal application, while the latter [management which uses the data] may express itself in ideas and terms that cannot readily be associated with operating realities." If along with Mr. Kohler's *Dictionary for Accountants* which "translates the language of accounting into words having established meanings in other fields," the supervisor consults the work under review, he can avoid many difficulties and furnish knowing guidance to the specialists who operate the system.

They Were There

THE CIVIL WAR: Volume I: The American Iliad, by Otto Eisenschiml and Ralph Newman; 719 Pages; 43 Maps; Index; Volume II: The Picture Chronicle, by Ralph Newman and E. B. Long; 240 Pages; Illustrated; Index
Grosset & Dunlap, 1956
Boxed set, $10.00

Reviewed by
COL. R. ERNEST DUPUY

Here is the Civil War presented in a newsreel of word and picture; a "You Were There" of our greatest national emotional experience. This sums up the reactions of one reviewer to these remarkable volumes, which must be discussed separately to get the full flavor.

Perhaps the best way to look upon this latest addition to the flood of literature upon the War Between the States (Civil War to us Northerners) is to peek at the introduction by Bruce Catton to Volume I, *The American Iliad:*

"When all is said and done," writes Mr. Catton, "the way to get a real understanding of what the war meant and what it did to people is to go to the men and women who were actually in it—to the participants, who may have lacked the objectivity which comes from the distant view, but who at least were in a position to say what the whole business looked and felt like while it was going on."

Messrs. Eisenschiml and Newman have selected from the innumerable records of the Civil War a cross-section of newspaper reports of major and minor events, and personal letters and diaries of participants. They have linked them in starkly factual manner into an unvarnished running story.

These scraps of contemporary eyewitness reports are from North and South; out of the mouths and from the pens of civilians and soldiers long dead. They constitute, after all, what the legal confraternity term "the best available evidence."

To those who say that this has been done before, the answer is yes, and well done too, thank you, by Henry Steele Commager in *The Blue and the Gray.*

The difference is that here we have a vast succession of vignettes, as witness after witness climbs into the box for a moment, says his or her say, then bows back into eternity. The reader is both judge and jury upon this testimony, frequently contradictory as it must of necessity be, since these witnesses speak in the heat of contemporary emotion and under the pressure of their own principles. Once in a while one is recalled, and the later statement may be flagrantly at variance with the previous one.

Here we read of, and cannot help but share, the fears and the hopes of individuals sucked irrevocably into the maelstrom of war. We sense with them the dank fog of battle and—this will interest the soldier—note the appalling valor of ignorance on both sides that propelled thousands of men to futile death.

The soldier will be interested, too, in the occasional glimpses furnished by this uninhibited testimony of generals with their frock coats doffed and their galluses dangling.

Take the testimony of young Army surgeon John H. Brinton at Grant's headquarters before Fort Donelson the day before its surrender:

"As I happened to be in our kitchen bedroom . . . in the afterpart of the day, I heard General Grant give orders to . . . send a dispatch to General Halleck, informing him that 'Fort Donelson would surrender on the following morning.' When I was alone with the General I said to him: 'General, was it not a little dangerous to send so positive a message as to what the enemy will do tomorrow? Suppose he doesn't do it?'

" 'Doctor,' said the general to me, 'he *will* do it. I rode over the field this afternoon and examined some of the dead bodies of his men; their knapsacks, as well as their haversacks, were full of food; they were fighting to get away, and now that they have failed they will surrender. I knew Generals Buckner and Pillow in Mexico and they will do as I have said.' "

Dr. Brinton probably never knew that he had just heard, from the mouth of one of the world's greatest generals, one of the few examples extant of a perfect military estimate of the situation.

Volume II, *The Picture Chronicle*, is something else again. Ralph Newman and E. B. Long have compiled a detailed chronology of the war, well seeded with the best of the immortal photographs of Brady, Gardner and Barnard. It is interlarded, also, with facsimiles of important documents and letters—published also in clear type for the benefit of those unable to decipher the scrawls of the great.

The line-ups of the major armies of both sides are presented. A series of thumbnail biographies of the men who made war, each with a portrait, is included. A selective bibliography of Civil War literature is a boon to a new generation of American students of military history as well as a guidepost to the general reader attempting to scale what the authors well term "the literary Mount Everest" of Civil War literature.

Allan Nevins, in his foreword to this volume, sums it up: "This collection of pictures, so industriously made, so astutely arranged, and so conscientiously annotated by Mr. Newman and Mr. Long, is not a mere supplement to history; it *is* history. The authors have searched zealously for the two cardinal values . . . veracity of detail and inspiration to the imagination."

These books, then, constitute not just a twice-told tale, but rather a variation of a never-to-be-forgotten theme; as good a bird's-eye view of a vast panorama as can be grasped. It's that kind of work.

Meade and Lee

THEY MET AT GETTYSBURG
By Maj. Gen. Edward J. Stackpole
Eagle Books, 1956
342 Pages; Illustrated; Index; $4.95

Reviewed by
BRIG. GEN. DONALD ARMSTRONG

Among the scores of books on the campaign and battle of Gettysburg, General Stackpole's account is easily best for the student of military history. It is superior in explaining the strategic moves of the campaign preceding and following the battle. Although it might profitably have given greater tactical detail of the meeting engagement of the first day, it is not otherwise excessively oversimplified in its successful effort to clarify the confusing moves of the three-day struggle. It is particularly valuable in describing Meade and Lee in action. The greater portion of the book is devoted to showing the paramount influence of the two leaders' character and personality and military artistry on the campaign, and to understand this is one of the most useful products of the study of past wars.

How important a contributing factor this was to the outcome at Gettysburg merits all the emphasis General Stackpole gives it. He is also well aware of the need for devoting much attention to terrain and weather, to weapons and the logistical limitations on both armies. Nor does he neglect the intangibles of morale and chance in considering all elements that had a significant part in producing the result.

Undoubtedly Dr. Freeman in his description of Gettsyburg shows greater literary ability and his historical analysis may be somewhat superior to General Stackpole's, but the latter has a sounder grasp of military technique. Also, the General has always lived near Gettysburg and is intimately familiar with the topography of the area.

One lesson is constantly driven home and is worth pondering. It is a study in contrasts. Lee lost Gettysburg because of an excess of offensive zeal and overconfidence in his army's ability. He greatly underestimated the tremendous fire power of the combined infantry and artillery of the Army of the Potomac. On the other hand, Meade failed to win a smashing victory at Gettysburg because he was excessively imbued with a defense psychology and considered his mission accomplished when Lee retreated from the field.

True enough, General Meade had some excuse for his defensive attitude. On 27 June, 1863, General Halleck's directive to fight Lee's invasion of the North urged Meade to remember that "the Army of the Potomac is the covering army of Washington." But all of Meade's actions showed that he needed little urging to keep defense in mind. One of his earliest moves was to decide on a line southeast of Gettysburg along Big Pipe Creek where he could defend Baltimore and Washington if and when Lee moved in that direction. General Stackpole's book shows this position on one of the many maps, which are helpful although not well reproduced. They include another infrequently shown sketch of Lee's defensive position around Williamsport after his defeat.

General Stackpole feels that Buford and the greatly improved cavalry units of the North have not received proper recognition for their effective role on the first day at Gettysburg. He is critical of Lee's failure to use the cavalry he still had in spite of Stuart's grandstand play and absence from the Army of Northern Virginia until the final days. In discussing the many controversial features of the campaign and battle, General Stackpole is unprejudiced and obviously seeks to interpret events and personalities with a sympathetic understanding of the friction of war. He might well have expanded his references to the role of the artillery, which is too often neglected in Civil War history. On balance, however, great praise is due General Stackpole for showing us how a magnificent strategist like General Lee could be a mediocre tactician and a leader too considerate of his subordinates; in what ways General Meade failed in generalship; and in his innumerable comments on men and events which afford profitable lessons for later generations of American soldiers. The inclusion of the most significant directives and orders, the many eyewitness reports and the 124 illustrations, most of which are contemporary with the battle, add to the interest of this important contribution to Civil War military history. General Stackpole has written a highly competent and professionally valuable military study of Gettysburg which has been long overdue.

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Report from your AUSA CP

Observations at Second Annual Meeting:

Interest in Chapters. Chartering ceremonies resulted in visits to Association office by representatives of many posts to obtain chapter regulations, get advice.

Relaxation. Members had almost a carnival spirit, although all sessions were well attended. Program's proper balance between social functions and professional occasions was the secret. All look forward to Third Annual Meeting.

Membership interest. Many members sought out secretary, offered suggestions on conduct of Association, future Annual Meetings. All suggestions will be considered by Council of Trustees.

Council of Trustees. High caliber of Council impressed membership; very active interest of Council in Association affairs impressed staff.

Industrial Exhibits. Displays by leading industrial firms excited intense interest of members. Exhibits were informative, educational -- first inkling some registrants had of wide range of industry interested in Army, variety of end items and components available.

Chapter charters were issued to Fort Leavenworth, Fort Leonard Wood, Fort Riley and Fort Sheridan at Second Annual Meeting. ROTC Company charters were issued to Pennsylvania State University and Valley Forge Military Academy. The program is just beginning; you'll hear more later. Regional organizations were outgrowth of demand at First Annual Meeting, held at Fort Benning in 1955.

Airborne readers will be interested in new project at Fort Bragg--82d Airborne Division Historical Society has been formed as non-profit activity to perpetuate history and traditions of the Division and to provide a place for the display of historical properties, among other purposes. For further information write to Lt. Col. Gerald W. Davis, Executive Secretary of Society at Fort Bragg.

These pages have been used in the past for pats on the back for those who have done much to recruit members for the Association. There just isn't the space to do it properly any longer. When General Matthews came to Second Annual Meeting from Fort Riley with 3,000 members for Fort Riley Chapter, that did it. Membership fulfillment department is swamped; training program for new employees is under way. Please be patient if membership cards, first issues of ARMY are delayed. We are so far behind in processing applications that we aren't sure any longer who are leaders in membership effort. We do know that Fort Knox, Fort Sill and the entire 25th Division (not only the Wolfhounds, as indicated in October CP) are among the leaders.

Twenty-page booklet available contains Association By-laws, Regulations for Chapters and ROTC Companies. Write Secretary for your copy if you are interested.

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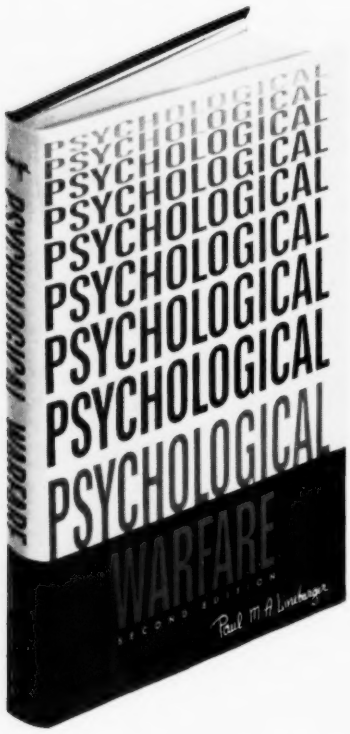

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